

# *The Cornell* HOTEL AND RESTAURANT ADMINISTRATION *Quarterly*



MAY 1960 • Vol. 1, Issue 1

## A Special Report *Room* on the Food Service Industry

Trouble-Shooting Your Food Operation . .	17
Purchasing from Purveyors . . . . .	30
The Use of Precooked Frozen Foods . . . .	46

# *A Salute to the 35th Hotel Ezra Cornell*

*and to the*

*34 H.E.C.'s*

*held since 1926!*



*Seated:* Victoria Willis (Swarthmore, Pa.), secretary; Olivier Friedli (Bern, Switzerland), managing director; Allen Tirado (Houston, Texas) front office manager; Dieter Straube (Santiago, Chile), banquet manager; and W. Kirk Smith (Wayne, Pa.), front office. *Standing:* James Tsighis (Hempstead, N.Y.), reception; Vance Christian (British West Indies), steward; Holten Brandi (Greenport, N.Y.) chef; and Ronald Kooser (Harmony, Pa.), engineer.

*Not in picture:* Sue Atlas (Coatesville, Pa.) housekeeper; John Colman (Lincoln, Neb.), house manager; Austen D. Fitzgerald (Lake Forest, Ill.), exhibits; Lynn Godfrey, (San Jose, Calif.), publicity; Thomas Pedulla (Somerville, Mass.), maitre d' hotel; Paul Schreiber (Bariloche, Argentina), back of the house manager; Raoul Sudre (Casablanca, Morocco), entertainment and decorations; and Albert Trages (East Hampton, N.Y.), auditor.

For more than a generation, students of the School of Hotel Administration at Cornell have planned and administered their own "final examination" to supplement those given by the faculty. Starting in 1926 with a small banquet for visiting hotel and restaurant men, this event has developed into a major weekend project. Housing, breakfasts, luncheons, receptions, banquets, seminars, and exhibits as well as other entertainment are planned for more than 400 visitors annually.

All planning, promotion, purchasing, rooming, preparation, service, and finance are handled by student committees without faculty supervision. In laying the groundwork, budgets are drawn up and submitted for the student board's approval. Stock is issued and sold to students, faculty, and friends of the event. The goal (like that of any other business venture) is to meet all bills promptly, pay a dividend to stockholders, contribute to the School's scholarship fund, and yet retain sufficient surplus to get next year's Hotel Ezra Cornell under way.

## *An Editorial . . .*

The trade press of the hotel industry has a long history of effective support for the men who devote their lives to the provision of public hospitality. Especially significant has been the aid to education. Technical articles have contributed directly to the knowledge and understanding of the hotel operation. News articles and editorials have supported actively the various schools and educational programs in the field. The very idea of a university "chair" in hotel administration was first broached in 1915 by the dean of hotel editors, John Willy, founder of *Hotel Monthly*.

But a business paper cannot be expected adequately to serve an academic purpose. Space limitations prevent. The editorial emphasis is naturally different.

There has been, therefore, for a long time a need for a definitely scholarly type of hotel and restaurant publication. As education in the field has advanced that need has become increasingly evident. At last it is to be met.

Supported as it has been almost exclusively by student fees, the School of Hotel Administration at Cornell has heretofore felt obligated to concentrate its resources on resident instruction, on the instruction of the student actually enrolled at the University. But the School has nevertheless always recognized its responsibility to give such assistance as it could to the education of hotel men active in the field. Now with expanded resources and the assistance and encouragement of the Statler Foundation the School proposes to share its teaching material with hoteldom at large through this new Cornell Hotel and Restaurant Administration Quarterly.

It will be the purpose of the Quarterly, without impingement on the commercial trade press, to provide a forum for serious discussion by all interested and competent parties of the problems and progress of the hotel industry; to report without abridgment the operational ideas of leaders in the field; and to bring to all hoteliers the results of investigations and studies by Cornellians and other researchers.

The Quarterly proposes to make generally available issue by issue the salient points of the content of Cornell classroom study, to report in detail the notable addresses given at Cornell's workshops and symposia. The comments and the support of readers are solicited.

*100 Muck*

Dean, School of Hotel Administration

# *A Tribute to*

## **Prof. Frank H. Randolph**

In deference to University regulations, but in no sense to Father Time, Professor Frank H. Randolph will retire June 30 as head of the Department of Hotel Engineering of the School of Hotel Administration, a department that as a single professor he initiated with a single course in 1923 and developed over the years into a program of ten or twelve courses taught by a staff of five.

The School of Hotel Administration began as a department in the College of Agriculture in 1922. The first class of 21 students had only one professor, the present Dean. He quickly realized the need for additional staff and his choice in May 1923 was Frank Harrison Randolph.

Professor Randolph had received the B.A. degree from Yale in 1915 before going to MIT and then Cornell where he earned the M.E. degree in 1917. He was graduated as an Ensign from the U.S. Naval Steam Engineering School in 1919. There followed a tour of Navy sea duty, experience as a practicing engineer, and teaching at Yale's Sheffield Scientific School. Professor Randolph spent a semester familiarizing himself further with the specific problems of hotel engineering before taking up active work on the campus.

With no precedents to guide him, relying on his substantial engineering background, his Naval training, and his acquaintance with the needs of the hotel industry, Professor Randolph gradually developed a program in hotel, restaurant, and institutional engineering which has no equal. There being no teaching material available, he developed a whole series of textbooks dealing with such topics as hotel equipment, hotel plumbing, the design of hotels and motels, and the general food service planning. Students, sometimes reluctantly, were made to see the importance to them as prospective managers of modern hotels—large and expensive structures operating every hour of every day without let-up, crowded with advanced equip-



*Frank Harrison Randolph, B.A., M.E., P.E.*

ment of every type—of a thorough basic knowledge of drawing, hydraulics, steam, electricity, refrigeration, heating and lighting, of all of engineering, in fact. And they were led through lecture and laboratory exercises one after another to gain that knowledge. Of all the various subjects that make up the curriculum of the School of Hotel Administration, hotel engineering is probably the one most students are disposed to challenge, but it certainly is the one that graduates after five or ten or more years of experience are quickest to laud. "How I wish I had taken more of it," they say.

Professor Randolph is a licensed Professional Engineer. During the second war and on sabbatic leaves, he has returned to active engineering and has shouldered heavy responsibilities, among them service on the Hoover Commission, and consultation on the development of plans for a number of hotels. Along with his teaching he has found time currently to respond to the many calls on him from graduates and others for consultation on hotel engineering problems. And that consultation work, expanded now with greater available time, will be his major concern when his Cornell colleagues reluctantly yield him back to the active practice of engineering.



# The Cornell

## HOTEL AND RESTAURANT ADMINISTRATION

### Quarterly

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THE CORNELL HOTEL AND RESTAURANT ADMINISTRATION QUARTERLY is devoted to disseminating technical knowledge and research relating to hotels, motels, restaurants, clubs, industrial feeding, hospitals, and institutions generally.



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## Contents

A Report on Progress in the Food Service Industry .....	4
Troubleshooting Food Service Operations ..... <i>Matthew Bernatsky</i>	17
Meat Purchasing .....	<i>J. J. Wanderstock, Ph.D.</i> 25
Earning Full Value in Purchasing .....	<i>Mickey Houston</i> 30
The Use of Precooked Frozen Foods .....	<i>Donald K. Tressler, Ph.D.</i> 46
The Temperamental Potato .....	<i>Ora Smith, Ph.D.</i> 50
Recipe Standardization .....	<i>Myrtle Ericson</i> 55
Fats, Facts, and Figures .....	<i>Laura L. W. Smith, Ph.D.</i> 60
Sanitation is Part of Good Management .....	<i>Leslie E. Bond</i> 65
Food Mixtures and Staphylococcus .....	<i>Karla Longree, Ph.D.</i> 69
Improvements in Dishwashing .....	<i>Clyde R. Weihe, Jr.</i> 75
The Food and Beverage Manager .....	<i>Joseph Brodner, C.P.A.</i> 79
Selected References on Food Purchasing .....	<i>Aime Moore, Ph.D.</i> 84

#### Short Feature Articles:

Cooking Vegetables to Preserve Nutrients .....	49
Urge Problem Drinkers to Eat .....	54
Origin of "Porterhouse" Steak .....	64
Mr. Zeckendorf Speaks on Hotels .....	81
100th Anniversary Menu .....	82
Experts Discuss Public Space Planning .....	83
Employers Lead in Educating Employees .....	96

*The opinions expressed herein are those of the authors  
and not necessarily those of Cornell University.*

# *A Report on Progress in the Food Service Industry*

## EDITOR'S NOTE:

Food service operators are looking ahead with high hopes into the 1960's. Economists have forecast an expanding economy and a tremendous population increase, which means more patronage for public eating establishments. The outlook also foretells rising costs for doing business, higher taxes, and increased use of labor-saving equipment and devices.

To gauge the present status as well as to learn what future steps the food service industry plans to take, the faculty of the School of Hotel Administration asked twenty-three leaders to answer a questionnaire. Hotels, clubs, restaurants, cafeterias, industrial feeders, hospitals, and college dining halls were included to provide a cross-section of opinion. The answers obtained and the comments made by these participants are given in part in this summary. Where permission was granted, names are given.

The basic work for this summary was done by Professors O. Ernest Bangs, J. William Conner, Helen J. Recknagel, Nicholas F. Schneider, and J. J. Wanderstock.

H. B. MEEK



## BASIC QUESTIONS ASKED

1. In planning public space, what is the trend for design and decor?
2. Is greater use in the offing for punched-card controls?
3. How widely used is closed-circuit television? What is the outlook?
4. If labor costs increase, how do food operators plan to offset these added costs of doing business?
5. How are menu prices now determined? Will methods change soon?
6. What convenience foods are winning acceptance? What is the outlook?
7. When business increases, is more storage space really needed or can purchasing methods be adapted?
8. What food products or preparation equipment have helped cut costs?
9. Are china and linen substitutes gaining wider acceptance?
10. Is more mechanization ahead for dishwashing?

## PARTICIPATING ORGANIZATIONS

Albert Pick Hotels, Chicago, Illinois  
Residential Halls, Cornell University, Ithaca, New York  
Arthur W. Dana, Consultant, New York City  
The Drake Hotel, Chicago, Illinois  
Food Service Division, Ford Motor Company, Dearborn, Michigan  
The Greenbrier Hotel, White Sulphur Springs, West Virginia  
Hilton Hotels, New York City  
The Houston Club, Houston, Texas  
John R. Thompson Co., Chicago, Illinois  
The Kahler Corporation, Rochester, Minnesota  
Food Service Division, Marshall Field & Co., Chicago, Illinois  
A. L. Mathias Co., Baltimore, Maryland  
Memorial Center for Cancer and Allied Diseases, New York City  
Morrison Cafeteria Co., Inc., Mobile, Alabama  
Pope Cafeterias, Inc., St. Louis, Missouri  
Food Service Division, Princeton University, Princeton, New Jersey  
The Prophet Company, Detroit, Michigan  
Sheraton Hotels, Boston, Massachusetts  
The Slater System, Philadelphia, Pennsylvania  
The Stouffer Corporation, Cleveland, Ohio  
Treadway Inns, Rochester, New York  
Western Hotels, Inc., Seattle, Washington  
Withheld: Name of a restaurant chain preferring to be anonymous

## 1. IN PLANNING PUBLIC SPACE, WHAT IS THE TREND FOR DESIGN AND DECOR?

The 23 companies voted "Yes" by an overwhelming majority (20 Yes; 2 No; and 1 No Reply) in answer to the following question:

*Do you foresee increased use of specialists in decoration, lighting, and air conditioning?*

The respondents were almost evenly divided in their answers (10 Yes; 12 No; and 1 No Reply) to the question:

*Do you foresee increased purchasing of standard furniture from catalogues rather than ordering especially designed pieces for your operations?*

In order to learn the present decor of the 23 companies, the following question was asked:

*Do you now have a room that could be described as follows (Several answers may be true.):*

<i>Specialty rooms by geographic, period, or motif themes?</i>	Yes	17	No	6
<i>Standardized motif to identify all units of an operation?</i>	Yes	5	No	18
<i>Close contact with outdoors—"bringing the outdoors in"?</i>	Yes	4	No	19
<i>Closed-room atmosphere with artificial lighting and climate control?</i>	Yes	18	No	4*
				* 1 No Reply

From the above responses, it can be concluded that the present trend in decor is toward closed-room atmosphere with artificial lighting and climate control, with the room decorated in a geographic, period, or motif theme.

Future plans for decoration, as set forth in the comments on the following pages, indicate that the present trend for "specialty" rooms will be continued.

Some operators, as the comments indicate, plan to upgrade their present decor; but no radical changes (such as Ernest Dichter's "dining room in the round" with production in the center of a dining theater) are being planned by the 23 companies reporting.

## SELECTED COMMENTS ON PUBLIC SPACE DESIGN AND DECOR

### *What do you now have as decor in your restaurants?*

<b>The Drake</b>	Camellia House — Contemporary adaptation of the French Renaissance
	Club International — Tudor English
	Cape Cod — Early American Cape Cod
	Oak Room — Informal composite of French and English decor.

<b>Ford Motor Co.</b>	Because our facilities are used almost 100% by company employees, our decor is simple: primarily wall color, upholstery, and pattern in table tops. In three cafeterias we have small accent areas of Italian glass mosaic tile. Some executive dining rooms have paneled walls, architectural dividers and planters with live greenery. One executive dining room has a complete wall of thermopane glass from floor to ceiling that overlooks a roof-top garden of flowers and shrubbery.
<b>Kahler</b>	Decor varies from restaurant to restaurant. We have attempted to achieve a "warm" decor through use of wood, lighting, and drapery, with many parts of metal, plaster, and stone.
<b>Marshall Field</b>	Simple, bright, restful decor with no overall theme.
<b>Memorial Center</b>	Cafeteria No. I: Pennsylvania Dutch motif; cut rhododendrons; closed-room atmosphere with warm colors and artificial lighting. Cafeteria No. II: Framed pictures; artificial lighting; cool colors.
<b>Pick Hotels</b>	Novelty rooms with specialty menus are used in rebuilding and modernizing older rooms.
<b>Princeton University</b>	The decor of our restaurants is in keeping with the often-described architectural principles of the Ivy League; staid and not 'jazzy.'
<b>Stouffer</b>	Generally modern background with fine overtone of tradition for warmth and pleasant, relaxed dining.
<b>(Withheld)</b>	Contemporary and traditional but no 'avant-garde' decor; rugs, linen, top-quality furnishings and hangings.
<b>Treadway</b>	Early American as a basic policy.
<b>The Greenbrier</b>	The Greenbrier has three main dining rooms, all done in variations of contemporary Georgian decor to complement the hotel's architecture. Private dining rooms (and meeting rooms) are modern in decor and decorated with an eye for practicality. Our main dining rooms are repainted every year.

***What have you done in the past two years to change your decor?***

<b>Arthur W. Dana</b>	<i>Institutions:</i> More emphasis on lighting display counters. <i>Hotels:</i> Specialty restaurants with emphasis of some visual 'action' in preparation or service. <i>Employee Cafeterias:</i> Large seating areas made more intimate by dividing with planter boxes and screens.
<b>A. L. Mathias</b>	We have suggested to clients that they make dining areas more interesting to attract employees by using curtains, drapes, pictures, colors, and lighting. Also, we buy more interesting china patterns and try to get away from green-band type.
<b>Pick Hotels</b>	Created several new bars, public ballrooms, and dining rooms which has revived activity in our banquet space.
<b>Pope's Cafeterias</b>	We are making all our operations more elaborate.
<b>Sheraton</b>	More luxury-type rooms.



<b>Stouffer</b>	Modernized, added warmth, more color and comfort to meet new demands in services.
<b>(Withheld)</b>	Upgraded with contemporary decor rather than traditional style.
<b>Western Hotels</b>	Installed specialty rooms, all with different theme and decor. Eliminated all formal dining rooms.
<b>Cornell</b>	Brightened the colors and used contemporary decor instead of traditional to meet student tastes.

***What changes do you plan to make during the next ten years?***

<b>The Drake</b>	No major plans. All areas are "sharpened up" as necessary, the usual period ranging between three and five years.
<b>Houston Club</b>	All rooms are completely redecorated every four to six years. We plan to add two specialty dining rooms.
<b>Sheraton Hotels</b>	More period dining rooms.
<b>Stouffer</b>	Continue to keep pace with changing ideas and public expectation. Make sure rooms are not dated.

**2. IS GREATER USE IN THE OFFING FOR PUNCHED-CARD CONTROLS?**

Among the 23 companies reporting, punched cards are chiefly used for payroll purposes but other uses are being planned. Morrison Cafeterias use punched cards for general accounting and The Houston Club makes statistical analyses of club usage with punched cards.

<i>Using</i>		<i>Companies Reporting</i>
<i>No.</i>	<i>Purpose</i>	
8	Payment of Accounts	(mainly payroll): Arthur W. Dana; The Houston Club; A. L. Mathias; Memorial Center Hospital; Morrison Cafeterias; John R. Thompson Co.; and The Stouffer Corporation.
4	Inventory Control:	Arthur W. Dana; The Drake Hotel (liquor only); The Houston Club; Morrison Cafeterias; The Stouffer Corporation.
3	Taking an Audit:	Houston Club; A. L. Mathias; Stouffer Corporation.
2	Piece-Work Payment of Personnel:	A. L. Mathias; Morrison Cafeterias.
0	Recipe Calculations:	One company is in the planning stage.

Within six months, one hotel plans to use punched cards for inventory control and hopes, within two years, to install a system including every purpose mentioned above. A hospital plans to use punched cards for pre-costing and also for statistical tallies of patients' menu selections. A university plans to use them to bill students for room and board. By 1970, one company now making extensive use of punched cards plans to install a "memory" machine to do away with card storage problems.

## SELECTED COMMENTS ON PUNCHED CARDS

- Arthur W. Dana** (Punched-card controls are) probably limited to institutional services (hospitals, hotels, in-plant cafeterias, and chain operations) that can afford the initial investment and obtain savings in clerical expenses, especially for:
- Payroll — Man-hour analysis even in food categories.
  - Inventory Control — Purchase quantities.
  - Precosting or predetermined sales value.
- Memorial Center** Punched cards have proved to be a preferred method for accounting for payment. It will be advantageous in controls of a large operation, particularly in inventory and quantity recipe calculations.
- Stouffer** Punched card and related data processing equipment offer numerous possibilities for exercise of management controls within the food service industry.

## 3. HOW WIDELY USED IS CLOSED-CIRCUIT TELEVISION? WHAT IS THE OUTLOOK?

Most respondents replied that the greatest use they are now making and also foresee is in their banquet halls and meeting rooms. Wider use is envisioned, however.

Using

No. Purpose

- 3 Internal Communication with Guests — (*Increase capacity of meeting and banquet rooms.*)
- 1 For Control ..... *Used by Marshall Field*
- 1 Menu Merchandising ..... *Used by The Slater System*
- 0 Internal Communication with Employees — *Three in planning stage.*

Within the next two years, one hotel plans to use closed-circuit television for all the purposes set forth above. A club plans to use television for control. By 1970, many respondents foresee greater use for television in their operations.

## SELECTED COMMENTS ON FUTURE USE OF CLOSED-CIRCUIT TELEVISION

- Arthur Dana** For supervision of preparation area, there is the psychological problem of installing a "spy" system.
- The Drake** Closed-circuit television would enable us to serve banquets for a larger group than can be accommodated in one function room. Guests can be seated in two or more rooms without depriving them of program participation.
- Greenbrier** Should provide excellent methods of control in preparation methods, particularly on food checking and pilfering.
- Kahler** Useful primarily for conventions and banquets.

<b>Mathias</b>	So far as controls are concerned as well as indirect observation and possibly supervision, TV conceivably could be an excellent aid and have some beneficial applications.
<b>Memorial Center</b>	Closed-circuit television within the Food Service Industry could be used to best advantage in communication with employees and also in employee training.
<b>Pick Hotels</b>	The only application we have used is to increase the capacity of our public space. When we have a large banquet in one room, we are able to use additional rooms for the same group and televise the subjects at the head table.

#### 4. IF LABOR COSTS INCREASE, HOW DO FOOD OPERATORS PLAN TO OFFSET THESE ADDED COSTS OF DOING BUSINESS?

To determine the solutions management foresees to offset increased wages, the following questions were asked:

*Do you expect labor costs to increase, decrease, or remain the same in the following areas:*

<i>Labor Costs for</i>	<i>Increase</i>	<i>Decrease</i>	<i>Remain Same</i>
<i>Supervisory Personnel</i>	<b>21</b>	<b>0</b>	<b>2</b>
<i>Service Personnel . . .</i>	<b>13</b>	<b>0</b>	<b>5</b>
<i>Counter Personnel . .</i>	<b>17</b>	<b>0</b>	<b>6</b>
<i>Food Preparation . . .</i>	<b>21</b>	<b>2</b>	<b>0</b>
<i>Cooking . . . . .</i>	<b>20</b>	<b>3</b>	<b>0</b>
<i>Ware Washing . . . .</i>	<b>19</b>	<b>3</b>	<b>1</b>
<i>Pot Washing . . . . .</i>	<b>19</b>	<b>3</b>	<b>1</b>
<i>Accounting . . . . .</i>	<b>4</b>	<b>1</b>	<b>18</b>

Companies expecting to decrease their labor costs in the kitchen area indicated that they plan to make greater use of convenience foods and of mechanical devices. One company hopes to cut accounting costs by making greater use of punched-card controls.

*If you expect labor costs to increase, will the answer be:*

<i>Steadily increasing prices?</i>	Yes	<b>12</b>	No	<b>11</b>
<i>Standardization of the product?</i>	Yes	<b>22</b>	No	<b>1</b>
<i>Better training techniques to obtain more efficient utilization of your labor?</i>	Yes	<b>23</b>	No	<b>0</b>
<i>Less personal service to guests?</i>	Yes	<b>10*</b>	No	<b>11</b>
			<i>*(In cafeterias only, 2)</i>	
<i>More specialty restaurants?</i>	Yes	<b>18</b>	No	<b>5</b>
<i>Increased use of devices such as:</i>				
<i>Conveyor belts?</i>	Yes	<b>21</b>	No	<b>2</b>
<i>Communication systems?</i>	Yes	<b>21</b>	No	<b>2</b>
<i>Bringing production to guest area?</i>	Yes	<b>14</b>	No	<b>7</b>
			N.A. 2	
<i>Bringing guests to production area?</i>	Yes	<b>8</b>	No	<b>13</b>
			N.A. 2	

That labor costs could be cut by "Bringing production into the guest area" was endorsed by 7 out of 9 companies that could be classified as either hotel or club. Among restaurants and cafeterias, 3 out of 6 saw possibilities in the idea, but only 1 out of 8 in the institutional category (industrial feeding, hospitals, college dining halls) felt that such a move would be practicable.

As for "Bringing the guest to the production area," this idea found acceptance among 4 out of the 9 "hotels"; 3 out of the 6 "restaurants"; but only 1 out of the 8 "institutions."

Opinion was about equally divided as to whether increased labor costs could be offset by raising prices. Six of the 9 "hotels" and 5 out of the 6 "restaurants" felt that they could raise their prices. But among "institutions," only 1 out of the 8 believed they could do so.

***How high do you think you could raise your prices without having the public stop eating in your operations?***

**(Withheld)** Probably 10 to 20 per cent.

**Houston Club** If the other operations increase their prices, why should there be a limit so long as consumer income increases?

**Kahler** Entirely dependent upon economics of the time. We must keep pace with inflation, but if we exceed it we reach the point beyond project return.

**A. L. Mathias** We already know this can't be done. Even people earning \$5 an hour will not pay over 10¢ for a cup of coffee in the employee cafeteria. *No.*

**Pope's Cafeterias** The entire economy faces inflation. So long as our prices do not exceed the general rate of inflation, we should not expect customer resistance.

**Sheraton** Some price increases will be accepted by the public but other means must be found to offset costs and still maintain the current price level.

**Stouffer** We'll have to raise prices if we can't absorb increased costs otherwise. Price increases must be weighed against current conditions.

**(Withheld)** Higher in restaurants than in cafeterias. Labor costs will be most inflated in restaurants.

**Western Hotels** We believe that we can increase prices in line with the normal rise in the cost-of-living index without having our volume affected.

**Slater** Prices must remain competitive with "home costs" and the local market.



*Please add any comments that explain your future policies or plans with respect to increased labor costs:*

**Morrison  
Cafeterias**

If the new Minimum Wage Law is passed by Congress, we must give more attention to scheduling employees' work and hours and discontinue fringe benefits. Also, we must upgrade the type of employees hired for work. Tipping may be discontinued and a service charge substituted to compensate for higher wages paid to service personnel. There will be an intensive drive toward work simplification and automation, more standardization and fewer menu items.

**Greenbrier**

The combination of impending wage-hour legislation and increased union pressure for spiralling wage rates is certain to make it increasingly difficult for us to maintain high standards for maintenance and service in the years ahead without pricing ourselves out of the market. The Senate Minimum Wage Bill S. 1046 would increase our current payroll costs by almost one million dollars, making it impossible for us to earn a profit with our present number of employees.

**Princeton  
University**

We believe that food service personnel in college installations have long been underpaid and not given employment benefits offered in other jobs. With this in mind, we are making the following changes in our food services department, effective July 1, 1960: (Administrative personnel are not included.)

1. Reduce the 48-hour work week to 40 hours.
2. Set the minimum starting wage at \$1.10 per hour.
3. After stipulated periods of time, allow employees who are interested to participate in the University's retirement program.
4. Set a program whereby qualified persons can attend summer courses offered in trade schools and colleges now training restaurant administrators.
5. Allow all employees, at no cost, to participate in the University's major medical insurance program.

**(Withheld)**

Specialty restaurants are the answer because they permit lower food costs and lower labor costs.

**Arthur W.  
Dana**

(Increased wages will result in) continued development of productivity standards in various phases of preparation, service, and warewashing; continued application of work simplification principles to all phases of the operation; and the adoption of quick-freezing techniques to sauces, stews, soups, and baked goods to produce in five days foods needed for seven days. No relief workers need be hired for days off.

**Ford Motor  
Co.**

We are exploring the feasibility of using a central kitchen for cooking; then freezing cooked foods to be transported later to each unit and reheated to serving temperature. This would reduce preparation, labor, and waste; eliminate the duplication of cooking operations; better utilize the highly skilled labor; and reduce overall labor costs. . . . The elimination of one employee

justifies spending at least five times his annual earnings on remodeling or rearranging present equipment, or the purchase of new labor-saving devices.

**Houston Club** We have a long way to go in training, both in utilization of people and of present equipment (not to mention machines to be developed in the future). Training should not only result in more efficient (faster) people, but also improve quality, which attracts old and new customers. We plan to have more and varied club activities and to do more promotional work.

**(Withheld)** We plan to have more quick-service restaurants and to reduce one room in size but offer formal, elegant service in it. We will continue to offer many buffets and to support the reduced-menu "coffee house" type of room. Increased labor costs, unfortunately, cannot be fully overcome by mechanization, training, or any other device or combination of them. The guest will get less service, that's all, except in the high-priced, small formal rooms. Specialty rooms are good but their use is limited for general feeding.

**A. L. Mathias** The food service industry is far behind heavy industry. Our answer will be in more self-service, more labor-saving equipment, greater productivity per employee, more mass producing of food, the taking advantage of new techniques for advance preparation, and the holding of foods in methods that will not allow quality or palatability to deteriorate.

**Pick Hotels** We explore all new labor-saving equipment. In many instances today's investment in such equipment pays for itself in three or four years; after that it helps build profits.

**Pope's Cafeterias** Our new operations are being designed so that the product is as close as possible to the point of service and sometimes even in view of the customer.

**The Prophet Co.** In our public restaurants and cafeterias we are utilizing as many labor-saving devices as we can without affecting customer service; such as conveyor belts, cantilevered ranges and cooking equipment. The public, we feel, has not yet fully accepted "self-service" in cafeterias.

**Sheraton Corp.** Some increased costs can be cut through using new types of equipment, new preparation methods, and by adopting more limited menus.

**(Withheld)** We believe the new minimum-wage coverage will be extended to our industry but that, as yet, there is little planning for it. . . . Our cafeteria expansion is in keeping with rising labor costs.

**Treadway** Open-type kitchens and specialty restaurants are definitely the trend.

**Western Hotels** Feature high-profit menu items to offset low-priced "musts."  
Use of convenience foods.  
Automation in food preparation and ware washing.

## 5. HOW ARE MENU PRICES NOW DETERMINED? WILL METHODS CHANGE SOON?

The majority of the respondents follow the conventional method of maintaining a food-cost percentage of anywhere from 25 to 50 per cent. Some of the other approaches are given below:

<b>Morrison Cafeterias</b>	Prices are standard for all of our units. We try to establish a range in which we have a menu item to suit everyone's pocket-book. Generally, it has been our policy to look at the gross profit on any given menu item as opposed to its food cost; therefore, we tend to run a high food cost on high-priced menu items.
<b>Arthur W. Dana</b>	Sliding scale: food-cost percentage rises logically with each additional increment in menu price, related to average cover and desired percentage.
<b>The Drake</b>	We figure menu prices on a cost basis (food cost per \$ sale). Increased labor costs are projected and the selling price is adjusted to recapture additional labor cost when efforts to reduce costs do not materialize.
<b>Houston Club</b>	On member's meals, 2½ times ready-to-cook cost; on member's parties, 3 times ready-to-cook cost. Some attention is paid to high labor-cost items, such as decorated pieces.
<b>Marshall Field</b>	Comparison of cost, competitive restaurants, and demand of customers for items determine our selling prices.
<b>Sheraton</b>	Basic cost of raw food plus mark-up to cover payroll, other expenses, and desired profit.
<b>Western Hotels</b>	Per person minimum plus cost of food.

## CHANGES BEING PLANNED IN PRICING METHODS

Only 4 of the 23 companies planned to make changes in their methods of menu pricing during 1960. The following changes are being contemplated:

<b>Arthur W. Dana</b>	Study labor costs attributable to each category of preparation and service as well as develop data in simplified way so as to highlight any items which require substantially less (or more) labor cost than the average for a given operation.
<b>Houston Club</b>	Due to improved food costs (better operation and decline in wholesale prices) we may be able to mark up member's meals only 2½ or even 2 times, particularly the high-priced steaks.
<b>Kahler</b>	We plan to consider overhead and labor in each menu price.
<b>Western Hotels</b>	Specialty room construction and service necessitate higher menu pricing. We are devising a new method.

## 6. WHAT CONVENIENCE FOODS ARE WINNING ACCEPTANCE? WHAT IS THE OUTLOOK?

Of the 23 companies surveyed, 19 are now using some convenience foods, particularly instant Sanka, instant hot chocolate, instant potatoes, and prepared fresh fruit sections. Hotels and institutions are making the greatest use of convenience foods; only half of the restaurants and cafeterias use them. Most of these same organizations now use less canned goods, notably in vegetables and seafood. The present numbers are now using the convenience foods listed below:<sup>1</sup>

Convenience Food	Used for Several Years	Now Using	Plan to Use This Year
Instant mashed potatoes . . . . .	10	6	0
Dried sliced and/or chopped onions . . .	7	6	0
Instant coffee . . . . .	4	2	2
Instant Sanka . . . . .	18	3	0
Instant hot chocolate . . . . .	17	1	0
Portion-packed cooked oats . . . . .	0	1	3
Frozen sliced/diced peppers . . . . .	5	0	1
Prepared fresh fruit sections . . . . .	15	6	0
Dried shrimp . . . . .	1	1	3
Poultry parts . . . . .	13	3	0

Other convenience foods listed by respondents as now being used are:

Frozen french fries	Portion-packed jellies
Frozen vegetables	Italian ravioli
Peeled, deveined shrimp	Filets of fresh fish
Pre-peeled potatoes	Canned, pre-cooked boneless hams
Cake and muffin mixes	Dehydrated chestnuts
Biscuit and pancake mixes	Dehydrated vegetables (celery, pep- pers, tomatoes, carrots and spring onions.)
Instant puddings	Sliced and/or dehydrated potatoes
Soup bases	Prepared salad dressings
Dried milk	Washed salad greens
Prepared toppings	
Turkey "rolls"	

<sup>1</sup> In this study, no attempt was made to ascertain what percentage of frozen foods versus canned or fresh is currently being used by the 23 food service operations. Col. Paul P. Logan, formerly director of food and equipment research for the National Restaurant Association, made such a study of 45 restaurant operations in 1954-1955. Colonel Logan reports his findings in Chapter 24, "Frozen Foods in Public Eating Establishments," *The Freezing Preservation of Foods*, Volume II, Donald K. Tressler and Clifford F. Evers, Avi Publishing Co., Inc., Westport, Connecticut, 1957.



In order to learn whether convenience foods are replacing canned foods, the companies were asked to what extent they used these canned foods in their operations:

	<i>Less than 2 yrs. ago</i>	<i>Same as 2 yrs. ago</i>	<i>More than 2 yrs. ago</i>	<i>No Answer</i>
<i>Canned Foods</i>				
<i>Fruits</i> .....	6	12	1	3
<i>Vegetables</i> .....	14	6	1	2
<i>Juices*</i> .....	7	12	3	1
<i>Seafood</i> .....	13	7	0	3
<i>Meats</i> .....	6	12	1	4

\* Note: In wording the question, no separation was set up for canned frozen fruit juices and regular canned fruit juices.

By checking the replies of the companies that answered they were using less canned foods than they did two years ago, it was learned, as expected, that these companies had increased their use of frozen foods.

*Prefabricated meats* are used in 8 out of the 9 companies classified as "hotel or club"; 7 out of 8 "institutional feeders" (industrial feeding, hospitals, college dining halls) and 5 out of 6 restaurants and cafeterias. Most users report that prefabricated meats are "satisfactory."

	<i>Now using</i>	<i>Will use in 1960</i>	<i>Find Satis- factory</i>	<i>Need Im- provement</i>	<i>No comment</i>
<i>Prefabricated Meat</i>	20	2	11	6	6

*Portion-ready meats* are used by 5 out of 6 restaurants and cafeterias, 6 out of 8 institutional feeders, but by only 4 out of 9 hotels. The report is as follows:

	<i>Now using</i>	<i>Will use in 1960</i>	<i>Find Satis- factory</i>	<i>Need Im- provement</i>	<i>No comment</i>
<i>Portion-Ready Meats</i>	15	4	9	8	5

*Frozen meats* are used by all 8 institutional "feeders"; by 6 out of 9 in the hotel or club group, but by only 3 of the 6 restaurants and cafeterias. Institutions plan to make wider use of frozen meats, but most of the hotels and restaurants do not:

	<i>Now using</i>	<i>More than a year ago</i>	<i>More in 1960 than in 1959</i>
<i>Frozen Meats</i>	18	7	6

#### SELECTED COMMENTS CONCERNING CONVENIENCE FOODS:

(Withheld) Through convenience foods, we control portions for meat and fish.

**Houston Club** We haven't used too many convenience foods as we think our members are looking for an oasis—a place where the food is traditional—and/or old-fashioned. We feel convenience foods have a different taste, not necessarily unpleasant, but *different*. We even bake all of our bread.

<b>Kahler</b>	Ever-increasing labor costs are forcing us to use convenience foods. Fortunately, the quality of this food is continually growing better.
<b>Marshall Field</b>	Generally prefer fresh items because of quality.
<b>Cornell</b>	Instant coffee needs considerable research to improve aroma and flavor. The flavor is questionable for reconstituted dehydrated fruits, vegetables, and garnishes.
<b>Memorial Center</b>	We have found convenience foods desirable and economical. There has been great improvement in the instant potato, especially the potato flake.
<b>Pope's Cafeterias</b>	In general, we have found the cost of convenience foods higher than the value of the 'built-in' labor.
<b>Princeton</b>	Dehydrated vegetables are being developed to the point that today few operations can afford not to use them to some degree. The February 1960 issue of The Journal of The American Dietetic Association has an interesting article by John P. Nielsen dealing with new food products. Dr. Nielsen points out that work is being done with enzymes added to dehydrated vegetables before cooking to generate the original flavor.  The implications are tremendous. By using dehydrated vegetables, problems of storage, freight, spoilage and seasonal price fluctuations can be largely overcome. The surface has only been scratched in this field and I predict a tremendous improvement in quality and variety in the 1960's.
<b>Western Hotels</b>	Educating food personnel to make use of convenience foods is the most important step to their usage.

#### SELECTED COMMENTS CONCERNING CANNED FOODS:

<b>(Withheld)</b>	Canned goods amount to only 30 per cent of sales.
<b>The Drake</b>	Due to improvements and advancement of the frozen food industry and Cry-O-Vac products, there has been a big decrease in the use of canned foods.
<b>Houston Club</b>	If canned goods could just keep their color they would be hard to beat.
<b>Marshall Field</b>	Fresh and frozen foods are used because of quality.
<b>Memorial Center</b>	We use more frozen foods because we consider them more nutritious than canned foods.
<b>Sheraton</b>	Canned foods have not kept pace with improvements in frozen foods during the past five years.
<b>Treadway</b>	When freezer storage space is limited, canned items become more important. This is true for slow-moving items whose occasional use does not warrant the sacrifice of freezer space.

*(Continued on page 86)*

# Trouble-Shooting Food and Beverage Operations

A well-known consultant outlines his approach for helping food operators solve their problems.

by Matthew Bernatsky<sup>1</sup>

"Trouble-shooting" is an American expression for getting at the heart of operational problems and putting matters in order with one master stroke. In food and beverage departments, few problems can be eliminated with one such master stroke. You can pinpoint where an operation may be losing money by studying the profit and loss records. You can analyze the layout and equipment to reveal shortcomings in production and service. But a hotel or restaurant is a service organization in which people serve other people. It has human problems. And problems involving the human equation are often so complex that no ready-made solution can be immediately applied. A long-time program of training and upgrading must be introduced and carried through.

For these reasons, I have developed a formula for "trouble-shooting": one approach to solve surface problems and another approach to recommend solutions for deep-seated operational problems. In the instances where my recommendations have been followed thoroughly and conscientiously, management has seen losses turn into profits; and, gradually but not overnight, dispirited employees gain new insight into and respect for their jobs.

<sup>1</sup> Professor Bernatsky is now Director of the School of Hotel and Restaurant Management at Denver University. On July 18, 1960, he will become Professor in Hotel Administration at Cornell University.

This article therefore presents two approaches for solving administrative problems in food and beverage operations: one dealing with production, layout and equipment; the second dealing with supervision and training.

## Production, Layout and Equipment

**Financial Reports.** When I first take a consulting assignment and before I visit the operation, I request that the financial statements for at least the three past years be sent to me. I also ask for the monthly statements for the past twelve to fifteen months. While there is more to hotel and restaurant keeping than just bookkeeping, no business can be successfully operated without good records. These records provide a blueprint for where I *may find* operational losses. Too much is sometimes read into figures. For that reason I make a careful check of the departments that seem to be losing money when I visit the operation.

**Menus.** Second, before visiting the hotel or restaurant, I ask for a breakdown of menu sales, obtained from the sales checks, for the past seven to ten days. How many portions of each item listed on these menus were actually sold each day? How much was prepared? I want to know whether the customers are buying the product that is being offered for sale. Money may be lost producing non-salable food.

Too many prejudices and not enough information enter into menu writing. The chef or steward may have certain taste preferences which influence what is prepared. Or too wide a range of items may be offered on the menu and some of them may be money losers. Only a ranking amateur offers ten-cent beer and hamburger steak in the same room where champagne and roast ribs of beef are sold.

Research the type of clientele to which you plan to cater. Then provide decor, atmosphere, menu, prices, and service to meet the desires and pocketbooks of this clientele.

When you try to sell high-priced items in a low-priced operation, you are only putting yourself out of business. Contrariwise, in a high-priced operation with a low turn-over, you lose money by offering low-priced menu items that do not carry their full share of production and operating costs.

Let me amplify this statement. In studying financial records, I examine food costs, labor costs, overhead, and profit ratios. In many operations, labor costs are equal to and often greater than food costs. The importance of keeping daily cost records will be emphasized later in this article. Low-priced menu items that have a low-food cost—such as soup, stew, and spaghetti—may appear to be profitable items to sell. But are they? The labor costs for preparing and selling them may be just as great, or even greater, than that of high-priced menu items—such as steaks and roast beef.

#### Food Costs vs. Labor Costs

I have prepared three tables to illustrate food and labor costs in relation to profit margins. Food and labor costs are analyzed in dollars and cents as well as by percentages.

Table I shows a typical menu with average selling prices, food costs, and labor costs. The total possible margin of profit for this menu is \$2.73. The food cost for the six menu items is 41 per cent. The labor cost for producing and serving averages 30 per cent. Both percentages are typical for food

operations. The labor cost for soup and pie makes these menu items profit losers. But guests usually order soup and pie as supplements to an entre. When they order steak or roast beef, the final

TABLE I

Item	Food Cost	Selling Price	Food Cost %	Gross Profit After Food Cost	Labor Cost %	Labor Cost \$	Profit After Food and Labor Cost
Soup	0.03	0.30	10 %	0.27	157 %	.47	-.20
Stew	0.30	0.90	33 %	0.60	52.2%	.47	.13
Half Chicken	0.50	1.50	33 %	1.00	31.3%	.47	.53
Prime Rib	1.00	2.50	40 %	1.50	18.8%	.47	1.03
Steak	2.00	4.00	50 %	2.00	11.8%	.47	1.53
Pie	0.05	0.25	20 %	0.20	188 %	.47	-.27
Total	3.88	9.45	41 %	5.57	30 %	2.84	2.73

combination of food and labor costs leaves a margin of profit. But when they order stew and pie, or soup and pie, you lose money.

Now examine Table II. Here, spaghetti, with a low food cost, has been substituted for steak, which has a high food cost. Accordingly, food costs go down to 32.5 per cent of the total selling price. But the total margin of profit has been reduced to \$1.68 for the six menu items. Labor costs remain the same as in Table I, but as a percentage of the selling price, they go up from 30 per cent to 42.4 per cent. Prime rib is the only item on this menu that will insure a profit. On stew, chicken,

TABLE II

Item	Food Cost	Selling Price	Food Cost %	Gross Profit After Food Cost	Labor Cost %	Labor Cost \$	Profit After Food and Labor Cost
Soup	0.03	0.30	10 %	0.27	157 %	.47	-.20
Stew	0.30	0.90	33 %	0.60	52.2%	.47	.13
Half Chicken	0.50	1.50	33 %	1.00	31.3%	.47	.53
Prime Rib	1.00	2.50	40 %	1.50	18.8%	.47	1.03
Spaghetti	0.25	1.25	20 %	1.00	37.6%	.47	.53
Pie	0.05	0.25	20 %	0.20	188 %	.47	-.27
Total	2.18	6.70	32.5%	4.57	42.4%	2.84	1.68

and spaghetti the profit margin is so narrow that you stand to lose money.

Finally, examine the menu given in Table III. This menu differs from the one in Table I in that stew has been dropped and the price of steak has been lowered to \$3.75 from \$4.00. Assume that by featuring steak at this lower price that two out of six guests will order steaks. Food-cost averages go



up to 46 per cent but labor-cost averages go down to 23.6 per cent. The total possible profit rises to \$3.63. Moreover, patrons are happier eating steak at a reasonable price than they are eating stew or spaghetti. It is safe to say that you will gain more business and make more profit.

TABLE III

Item	Food Cost	Selling Price	Food Cost %	Gross Profit After		Labor Cost %	Labor Cost \$	Profit After	
				Food Cost	Food Cost			Food and Labor Cost	Labor Cost
Soup	0.03	0.30	10 %	0.27	157 %	.47		-.20	
Half Chicken	0.50	1.50	33 %	1.00	31.3%	.47		.53	
Prime Rib	1.00	2.50	40 %	1.50	18.8%	.47		1.03	
Steak (2)	4.00	3.75 (1 7.50 (2	54 %	3.50	12.5%	.94		2.56	
Pie	0.05	0.25	20 %	0.20	188 %	.47		-.27	
Total	5.58	12.05	46 %	6.57	23.6%	2.84		3.63	

Some restaurants with high rental costs as well as high labor costs price the money-losing items on the *a la carte* menu so that they bear their fair share of the overhead. At Lindy's on Times Square in New York City and at the Newark Airport restaurant, The Newarker, to mention but two examples, appetizers, including tomato juice, are priced at 50 cents upward. Desserts also start at 50 cents and coffee is 30 cents. By comparison, the entrees at these restaurants are reasonably priced, ranging from about \$2.50 upward. Thus, the customer wanting value for his money is more likely to order a complete meal instead of just pie and coffee. By means of this pricing policy, management assures itself that each patron pays his share of the overhead.

### Purchasing

Once the menus have been evaluated and appropriate items recommended to insure the profit margin, the next step is to study the purchasing procedures being followed. Mickey Houston presents, from the viewpoint of the produce dealer, the rules that should be followed in purchasing supplies in his article given on pages 30-45. As a former chef and food and beverage manager, I should like to underscore these essential points:

- Become acquainted with government grades, labels, and standards. These vary from one section of the country to another; so learn the standards that apply in your particular area.
- Purchase by detailed specifications: count, weight, grade, label; and for meats and poultry specify grade (conformation, quality, and finish) and weight.

- Obtain competitive bids from several dealers in order to obtain the best price.
- Check supplies brought into your receiving room carefully against your purchasing specifications.

Which of these four procedures is the most important in good purchasing? All are important, but in my estimation *good receiving* is the most essential.

Who checks the deliveries made to your receiving department? This job should be assigned to a person who knows specifications and who can recognize quality. I have been in hotels where the pot washer signed for deliveries. The accounting department didn't even know the name of the receiving room clerk and had no

idea whether the bills coming in for payment were for goods actually received. If you don't weigh and check receipts properly, you tempt the produce dealer and his delivery men to short change you. The delivery man may hold out a few steaks sometime for a party at home. When this shortage isn't noticed, he continues to do so until he begins to view this confiscation as a fringe benefit of his job. *Careless receiving is an open invitation to dishonesty.*

Take another example. During the 1930's I bought leaf spinach from a produce dealer at \$1 a bushel. He knew my receiving methods so that I always got full weight. Down the street from me another hotel was buying spinach from the same dealer at 80 cents a bushel. I took this dealer to task for charging me 20 cents more. This is what he told me:

I pay 90 cents a bushel myself for leaf spinach. Your friend insists on buying spinach at a lower price than anyone else. So I quote him 80 cents a bushel, put four bushels of spinach in five baskets and deliver it to him. He doesn't check the weight and he doesn't know the difference. I make the same 10 cents profit per bushel on him but he thinks he's the best buyer. Why should you give me away?

Competitive bidding is meaningless when you don't check quality and weigh your deliveries.

If you serve set menus, as for banquets, investigate the use of convenience foods to save labor costs in food preparation. Portion-ready chops and steaks can be economically used in large-volume operations with set menus. But again, one must check these foods for quality and uniformity when

they are delivered. These convenience foods may cut down on your storage problems as well as on your preparation costs.

### Food and Beverage Standards

To control production in your food and beverage operation, you should use standard recipes and have portion control. If these standards exist only on paper, they are worthless.

When **standard recipes** are followed, your cooks should make use of their experience and judgment so far as the completed dish is concerned. If all they watch is the number of ounces going into the formula, the food may turn out to be mediocre, even though the recipe is excellent. Formulas are helpful, but cooking also requires interest and skill; it cannot be reduced to a factory-like assemblage. A good cook should never try to hide behind the recipe.

Not long ago a hospital dietician, a very dear friend of mine, appealed to me for help. She said, "We give our cooks excellent recipes, purchase good quality food, and yet the cooked food is tasteless and the texture is wrong." I talked to the cooks. They have been following the recipes faithfully. But considerable differences occurred in cooking from recipes because of the size and shape of the cooking pots. Fluids evaporate more quickly from wide, shallow utensils than they do from deep ones of smaller diameter that have the same capacity. Rapid evaporation also affects the seasoning. Cooking time is likewise affected, so that food may be over-cooked or undercooked because of the utensils size and shape.

Your cooks should follow standard recipes but use good cooking sense and know how the finished product should taste and look. If they can't recognize good food quality, they are simply production-line workers.

**Portion control** can be achieved in many ways: through cooking recipes; by size of serving spoons or scoops; and by size of serving dishes. Steaks and chops, the most expensive items, can be controlled by ounces. Ham and other roasts can be controlled by using slicing machines. The important factor is to have some unit of portion control that is consistently used.

The menu checks will sometimes show that 23 portions of stew were served and sold. Then you ask the chef how many servings of stew were prepared and sold and he will say 40. The chef prepared 40 and now it is all gone. What happened to the other 17 servings? Investigation will probably

show that larger-than-standard portions were served; and that the staff and visiting friends ate some, for which no record was available. In other words, there was no portion control over the food even though a set number of portions were prepared.

### Daily Cost Records

Food and beverage records can be truly helpful only when you obtain accurate daily information on food and beverage costs and on labor costs. If you wait until the end of the week or the end of the month, they are only history. If you have not previously kept daily records, your accountant may question the necessity. But the department head needs this information to adjust his payroll costs to fluctuating sales volume. Food and beverage costs stay in line with the amount of food and drink sold. Labor costs must also be related to volume; otherwise, labor costs and overhead will eat up your profits during slow periods. These daily cost records enable the manager to pinpoint periods of low volume; to forecast and budget his payroll and to schedule his help so that he keeps labor costs in line with sales volume.

Why, I ask you, should the food and beverage department have the same payroll costs during the slack season or during slow weekends that it requires for peak periods? Objections raised are: 1) *the staff won't like it*; 2) *the guests may not like it*; 3) *the ownership won't like it*. Everyone, it seems, won't like it except the manager who is *responsible* for making a profit.

But if you have your supervisors discuss the matter with the employees under them, they usually find that their workers, especially the waiters and waitresses, appreciate having time off to spend with their families and dislike working when business is slow and tips are poor. Second, if you close two or three back units in a coffee shop or dining room, keeping those open at front, the dining area appears to be well patronized. Guests throng into any eating establishment that appears to have the endorsement of a crowd. And third, ownership is just as interested in profits as the manager.

In one operation for which I was consultant, the profit margin was raised from 9 per cent to 14 per cent simply by scheduling the workers better.

When your department heads are shown these daily cost sheets for payroll, they will help you work for better scheduling of their personnel. As Ray Matson, president of the National Restaurant Association, observed: "The manager must know

more than his chef and his waitresses, but they can certainly help him." Win your department heads' cooperation by taking them into your confidence regarding operating costs. Discuss with them their problems in keeping costs down and keeping sales up. Through them you can gain the help and cooperation of the workers under them. This need for winning cooperation will be discussed fully under relations with department heads.

### Layout and Equipment

The basic requirement for good physical layout is that men and materials should not backtrack: production should move continuously toward its objective. Work flow originates from receiving and storage; moves on to preparing and cooking; and continues through to serving, removing, and dish-washing. Efficiency is promoted if the layout is on one level so that you can roll carts between the production and the service areas. Carts can also be used as selling vehicles in the dining room.

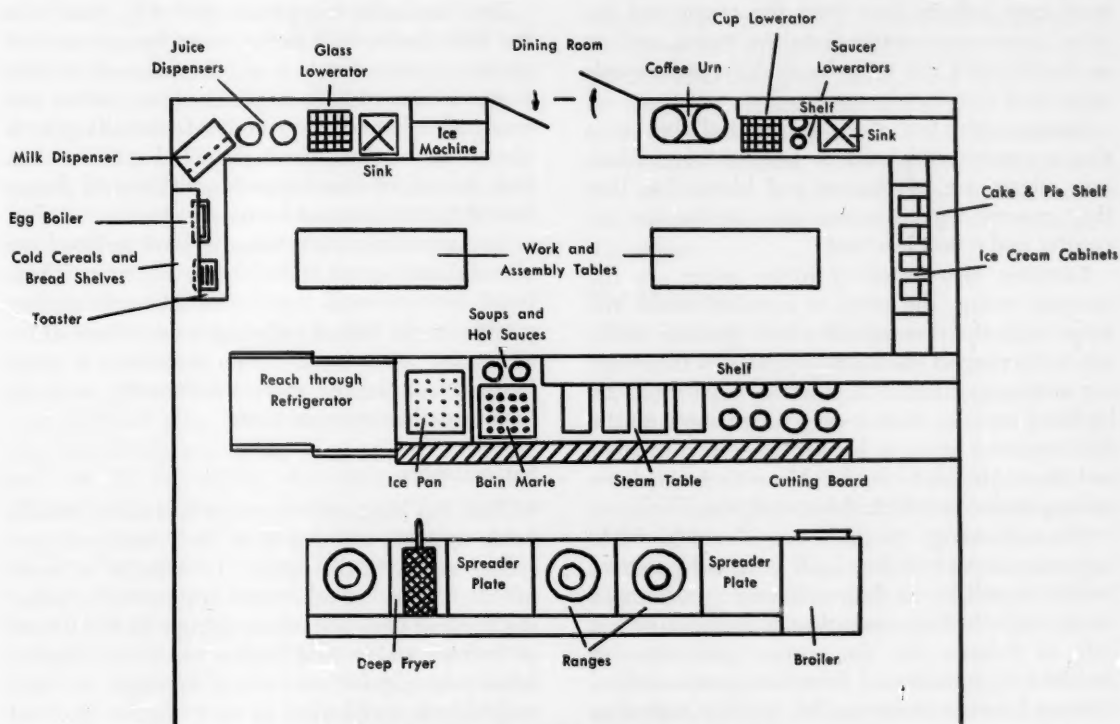
**Pantry Layout.** *The most efficient pantry layout is one that enables the waiters and waitresses to help themselves for the maximum number of items.*

When kitchen personnel must mind their cook-

ing and serve several waiters simultaneously, bad feeling develops between the kitchen staff and the serving personnel. Service can be speeded up and fewer kitchen workers required by installing reach-through refrigerators with glass doors between the pantry and the service areas. (See diagram.) Salads, grapefruit, melon, shrimp cocktail, and desserts can be stored on the shelves. The pantry girl can replace fast-moving items from the kitchen side.

Moreover, it is common practice for the kitchen staff, in trying to keep down food costs, to hand waiters the least-appetizing portions first. Reach-through refrigerators permit the waiters to select the best servings from the shelf for their patrons. The guests are better pleased and nearby patrons are more likely to order the same item. In short, with the reach-through refrigerator layout, your waiters are constantly selling the most attractive portions from the kitchen. Less appetizing portions of grapefruit, melon, and other items can be salvaged for fruit cup and other dishes.

**Kitchen Layout.** *Compactness does not necessarily make for an efficient kitchen.* Many kitchens are compact so far as holding the maximum amount of equipment in the minimum amount of



An Efficient Layout for Kitchen and Pantry

*The pantry layout shown above permits waiters to serve themselves for many items, freeing the kitchen personnel.*

space, but this compactness may not save steps for the cooks and may even cut down on their productivity. Cooks need ample working space and convenient **spreader plates** adjacent to ranges, broilers and deep fryers, as shown in the diagram.

The typical manufacturer's arrangement for compactness places the broiler first in line, with the deep fryers set in next, cheek-by-jowl, ending up the line with the ranges (under which are the ovens), with no working space provided between cooking units. Opposite this "cooking line" is the steam table.

Supposedly, the chef, who works in the middle space, can monitor several cooking operations at one time in this small area. But he has no shelf space. When the french fries are brown in the deep fryer, where does he put the basket when he lifts it from the hot grease? On the broiler? On the range? Of course he isn't that stupid. With the basket dripping hot grease on the floor, he turns and puts it on the steam table behind him, slipping as he does so on the grease already on the floor and spilling hot grease on his uniform and aching feet. He is surrounded with stainless steel—overhead; in the battery of cooking equipment before him; and in the steam table setup behind him. This stainless steel cage reflects heat from the range and the oven; noise reverberates from the metal surfaces so that he must yell to be heard. Everyone sounds angry and soon they become angry.

**Ranges.** Stainless steel is beautiful, but it is also expensive and hard to keep shining. Black iron ranges can be cleaned and blacked so that they present a good appearance; they're less expensive and reflect less heat.

Consider also installing **rotary ovens**. In the compact setup, the oven is installed under the range with the door opening out, blocking traffic when it is opened and baking the face of the stooping worker in front of it. A rotary-type oven can be fitted into the 42-inch deep range line with the door opening at work height level, saving labor and heat. Models are available with from six to seven pans that rotate in the oven space.

The radar range should be considered for cooking some items to order, such as baked potatoes, frozen vegetables in their containers, and frozen lobster tails. In large operations, a radar range will help to balance out the normal production of standard equipment and to cut down on over-production because items can be quickly cooked as needed.

When you are planning a new kitchen, consult

the cooks. They must work there. Some compact, stainless steel kitchens are torture-chamber hot boxes.

**Table Clearance.** Busboys should be trained to clear away soiled dishes, glassware, and silverware with efficiency and to stack the trays so that sorting is expedited in the dishroom. Tableware can be sorted into plastic boxes (not so noisy as metal ones would be) on carts to which a container box is attached for soiled napkins and doilies.

**Dishwashing.** The conveyor-type dishwasher with pegs is used in many big hotels and restaurants. For small operations, a 15-foot, flight-type conveyor dishwasher is available with two tanks. This machine is labor-saving because it eliminates handling plate racks. Dishes are handled only twice—when they are put into the dishwasher and when they are taken out.

**Service.** Hotelmen once thought they could not dispense with old-fashioned formal service in their dining rooms. Yet, when they converted to specialty rooms, they gained patronage and made more money. This change from formal service was partly prompted by the shortage of trained waiters who were skilled in French service or its American modification.

But far more important, probably, has been the fact that most Americans, except on rare occasions, prefer quicker and less formal service. This explains today's emphasis upon buffets and smorgasbords and why service from rolling carts is catching on. Only the high-priced establishment that can afford low turnover and leisurely dining should try to maintain formal service.

Do patrons receive quick, attentive service from cheerful, well-groomed hostesses, waiters, and busboys? Do they work together as a team in serving patrons or do they occupy separate islands so far as service is concerned? Can they answer questions concerning the menu intelligently, or is the menu a daily surprise to them?

### Salesmanship

That the high-check average is a more reliable index to profit margins than food costs was presented earlier in this article. In addition to menu offerings, there are other sales approaches to pleasing the customer and encouraging him to eat food of better quality and higher price. Remember, when you upgrade your check averages, you also enable your employees to earn higher tips and they will give better service.

**Carts.** When food is served from a cart in the



dining area, you don't need menus. Your patrons can see for themselves. Moreover, the waiter who cuts and serves roast rib of beef from a cart, or who prepares and serves a flaming dessert, has an opportunity for showmanship and salesmanship to everyone in the room. The other waiters and the busboys perk up and try to become part of the act. An attractively arranged cart of salads and desserts provides eye-appeal to the guests, who are accustomed to selecting their food at supermarkets, cafeterias, and smorgasbords.

When the waiter hands the menu to a guest and asks, "Do you want any dessert?" he is not practicing showmanship. The guest, calorie-conscious and money-conscious, will probably answer, "No." But when the waiter rolls up a cart laden with four or five delectable-looking desserts and asks, "Which will you have, sir, Napoleon cream slice or pumpkin pie with ginger whipped cream?" the guest is faced with a choice of two favorite desserts and no easy opportunity to say "No." Most patrons will reply, "I really shouldn't, but I simply can't resist it." That's salesmanship!

The reasons given for not using carts in dining room service are: "We don't have trained carvers and servers." "It takes time and we're in too much of a hurry." Or, "The city has health laws stating that carts aren't sanitary." Skilled waiters who can serve from a cart may be scarce, but you can train one or two people. Carts on swivel casters are now on the market and they are easy to move about and save time. Plastic dome covers can be obtained for both heated carts and refrigerated carts and these plastic domes conform to the health laws for keeping food covered. Carts, when properly used, save time, enable you to give better service and promote food sales.

**Cocktails and Highballs.** In the United States there is a definite trend away from using the standard glasses for serving drinks; such as, the 7 oz. highball glass; the 5 oz. old-fashioned glass; the 4 oz. whisky-sour glass; the 3 oz. cocktail glass; and the 1½ oz. whisky shot glass. Tall, ornate glasses for long drinks make the guest feel that he is getting more for his money and a higher price can be charged for the drink. A cocktail served in a 5 oz. champagne saucer looks larger than the same cocktail served in the standard 3 oz. glass. It is really only one-and-a-half portions, yet it commands a higher price as a "king-size" cocktail and steps up sales because it looks like a double portion.

**Wines.** Wine sales need not replace the before-

dinner cocktail or highball. Wine should be sold to accompany the dinner and to make food even more palatable. Not only can you help the guest enjoy his dinner to the utmost by promoting wine sales, but you can also build up a higher check average.

Here are three rules to keep in mind if you wish to promote wine sales:

- **Know something about wines.** Teach your employees about wines too so that they can answer questions and make recommendations. Feature only a few wines on your wine list and make your list informative.
- **Keep wines readily available for service,** as you do coffee, tea, and milk. If the wine should be served chilled, have chilled bottles in reserve. For wines to be served at room temperature, keep a few bottles readily at hand or on display—not locked away in the cellar.
- **Price wines realistically.** A 50 per cent wine cost should be adequate, since a wine sale is a plus sale at a time nothing else can be sold. You will sell much more wine when you price a bottle of champagne costing you \$3 at \$6 than you will at \$15.

## Supervision and Training

The human element, to my mind, is even more important to a successful operation than the physical layout and equipment. If the people have good job attitudes and good habits, your operation will be successful. If they are unhappy and disinterested, a better physical plant and standardized recipes and portions won't improve their production and service. A long-range plan must be made and carried through, starting with the manager's objectives.

### The Manager

The key figure in the human equation is the manager. What type of person is he? What are his objectives? A desire to make money is not a wrong objective, but as values go it isn't a high standard. The manager must have a worthwhile, reachable goal and he should have a plan for accomplishing it. Next, he should make an inventory of his physical resources and of his human resources. What are the strengths of his operation? The weak points? When he has a plan to follow, he can make recommendations and adjustments as time goes on.

The manager should maintain an up-to-date *organization chart* of the personnel working under him. Putting your organization down on paper is not always simple, but when you chart it you may



find that you lack continuity of responsibility or that you have double responsibility. A good organization chart should show continuity of responsibility and no crossing of lines. Every employee should know who is his immediate superior and who is responsible to him.

Too many managers have no goals and no plans and try to play by ear. A person can play alone by ear and make music. But when a number of people with varied talents try to play without notes or direction, you have bedlam. In brief, the manager must set the goal and provide the blueprint and then work through his department heads.

### Department Heads.

There is no human element in an operation unless the manager listens to his department heads and helps them develop the management viewpoint. Remember, your department heads are people. They have problems, both working problems and personal problems. How well do you know them? Do you sit down with them to have coffee and listen to their problems?

You may feel that such visiting encourages your department heads to kill time and that it will eat into profits. But when the manager sits down with his department heads for a cup of coffee, both he and they are relaxed and receptive to one another's problems. You may not establish rapport the first time or even the second time. But by the fifth time you may accomplish it. Then they will tell you their problems. They should have an opportunity to tell you their problems. They cannot tell them to the potwasher, although some of them do so. They should be able to tell them to the manager.

If the manager is busy or not receptive, he won't gain any understanding from their confidences. Sometimes a department head on his own initiative goes to the manager with his problems and the manager may not take time to listen. The reason the manager doesn't take time is because he isn't aware of the importance of listening to his department heads.

Each of us needs an outlet. Some of us are fortunate enough to have a wife to whom we tell our problems. Some of us go to the priest.

Most of us, before getting to the stage of needing a psychiatrist, go to the bar and have a drink. Later we tell our problems to the bartender. And there is nothing wrong with telling your troubles to the bartender. I'd much rather see a heavily burdened businessman go to the bar every day, have a drink or two, and tell the bartender his

problems than see him trotting into a psychiatrist's parlor. Basically, he will be a healthier person.

Do you tell your department heads your problems in keeping down food costs and labor costs? Do you ask their recommendations when you plan changes? Are your departments well-balanced with no department operating at the expense of the others?

You may well ask, "Why don't these department heads make progress on their own?" It is a matter of lack of appreciation of each other's problems and often a matter of inter-departmental jealousy. By asking for their advice on problems—whether you always find it wise to follow—you win their cooperation. You need their cooperation because it is only through them that you can reach the persons working under them.

When the manager of the food service operation is happy, relaxed, and considerate with his department heads and wins their cooperation, this attitude filters down through the department heads. They, in turn, become human and approachable to those working under them. The mental health and attitude toward work of the whole operation are but the lengthened shadow of one man, the manager.

### On-The-Job-Training

Skilled workers are needed in food operations. You cannot hope to meet the individual needs of your patrons with machinery only. Most customer complaints are now directed not at hotel accommodations and facilities but at service and courtesy. Moreover, machinery needs skilled operators in order to function properly.

On-the-job training provides a constant source for skilled workers. A good department head who is also a teacher-demonstrator makes the most successful instructor. He must be able to tell *how* and *why* a job is done as well as *show*. This instruction should be given before and after rush periods when the trainees are relaxed. The trainees should be permitted to ask questions and to demonstrate their mastery in teaching situations. Salesmanship should be included in your waiters' training program.

When your department heads provide on-the-job training, your employees have an opportunity to grow on the job and to become more satisfied with their jobs. If everyone in our industry provided on-the-job training, there wouldn't be such a cry for chefs, stewards, and waitresses. We'd train our own. ●

# Meat Purchasing

Meat is the basic item on the menu. How to select and purchase meats is essential to successful food operation.



*Professor Wanderstock points out the marbling in a "U.S. Choice" round of beef to a group of students in his meats laboratory in Statler Hall.*

*by Jeremiah J. Wanderstock, Ph.D.<sup>1</sup>*

The importance of meat on the menu in hotels, restaurants, and clubs cannot be over emphasized. As meat is the usual entrée, guests are more critical of it than of any other menu item. Knowledge of meats can "make" (and lack of it "break") a food service operation. The most successful foods people are thoroughly versed in all phases of meats and especially in its selection.

Every effort should be expended to provide the best possible merchandise for the guest's enjoyment and pleasure. In order to accomplish this objective, one must be familiar with a number of considerations relating to meats.

## Inspection

A purchaser of meats who serves the public

<sup>1</sup> Professor Wanderstock has been a member of the Cornell faculty for fifteen years. He has worked for the Meat Merchandising Department of the National Live-Stock and Meat Board in Chicago, and has been consultant for several hotel, restaurant, and club operations.

must be certain that he buys and serves only that meat which has been inspected for soundness.

## Inspection Agencies

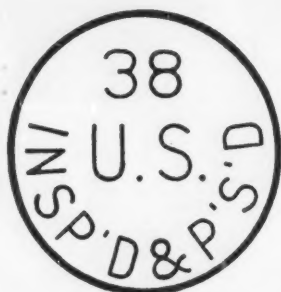
In the United States, fortunately, the Meat Inspection Division, Agricultural Marketing Service, United States Department of Agriculture has developed an intensive program of meat and meat-product inspection.

This inspection service guarantees that these food items were wholesome and were handled in a sanitary manner 1) at the time of slaughter; 2) during the various stages of the meat product preparation, and 3) when the products containing meat were labeled and, in some instances, sealed into containers. This guarantee is an ever-important consideration, especially for food service operations catering to the public.

Most states maintain some form of state meat inspection, patterned after the Federal system. Some counties in a few states, and many municipalities throughout the United States maintain their own meat inspection services.

## Inspection Stamps

A product inspected and passed as fulfilling the requirements of Federal Meat Inspection carries with it the stamp shown in Diagram 1. The number on the stamp refers to the plant in which the meat or meat product was inspected and passed. Each plant in the United States carries a specific number for identification purposes.



*Facsimile of the stamp of the Meat Inspection Service of the U.S. Department of Agriculture. The number "38" refers to the slaughter plant at which the meat is inspected (insp'd) and passed (p's'd).*

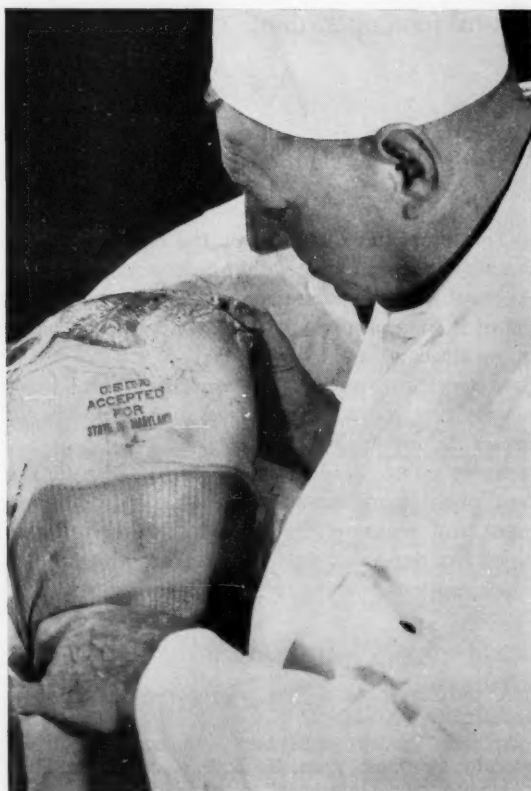


*Frankfurters are examined for compliance with specifications.*

## Inspection on Delivery

The presence of the stamp on the carcass or a replica of the stamp on a meat food product does not guarantee that the product is wholesome when it is received at the hotel or restaurant. Much can happen from the time the animal is killed and inspected until the meat is so received. In the majority of instances, nothing happens to cause the meat to become unwholesome. Occasionally, meat is received that is slimy and sticky and has an undesirable odor. This usually indicates that bacteria or other spoilage agents have started to produce an effect which makes for an unpalatable product. On arrival, meat should be very carefully checked to insure that it is not spoiling.

The effort of every hotel and restaurant operator should be to present meat at its highest possible level of desirability. Anything that deters from this should be avoided; hence, meat that is starting to spoil should be refused on delivery. If any question arises as to the safety of preparing and serving a meat item, the local Department of Health should be contacted. Or, call in a veterinarian.



*A smoked ham, having met specifications, is stamped as "USDA Accepted."*

Inspected meats, at the Federal, State, or local level, therefore, are basic in meat selection.

### Grading

Once meat satisfies the requirements of wholesomeness, then the next consideration should be its "eating desirability," which is commonly referred to as "quality" or "grade." The best indication of this eating quality is furnished by the grade indicated for the carcass or cut.

At present, two types of meat grading are practiced in the United States: United States (Federal) grading and Packer grading (commonly referred to as "packer brand" names).

Federal grading is a function of the Meat Grading Division, Agricultural Marketing Service, U.S. Department of Agriculture, Washington 25, D.C. This division publishes the *Service and Regulatory Announcements* for grades of various meats.

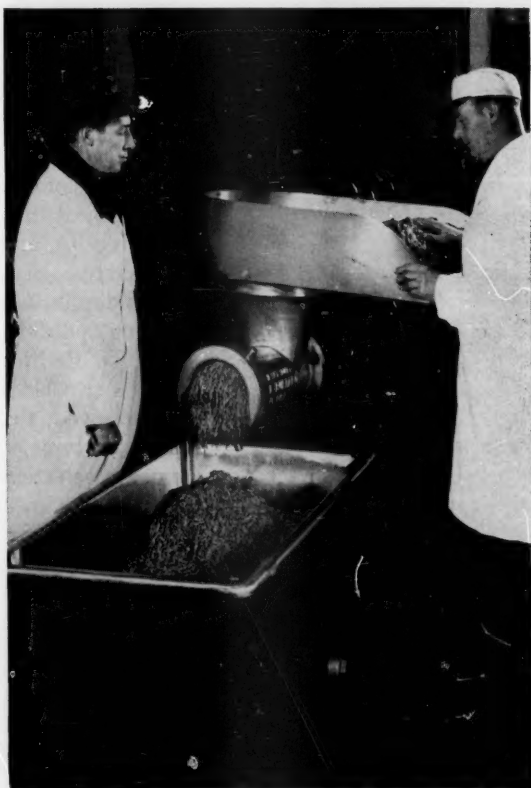
### Basis for Meat Grading

The basis of meat grading is a consideration of the *conformation*, *finish*, and *quality*.

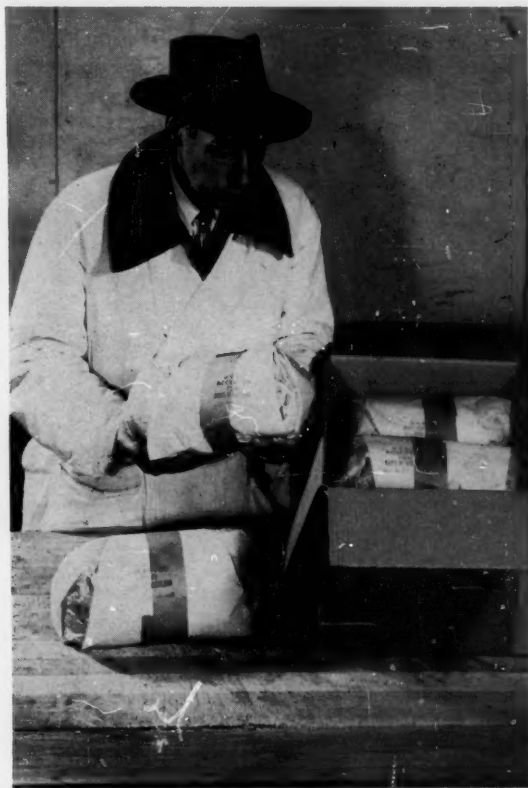
**Conformation** refers to the shape, contour, or the outline of the carcass or wholesale cut. It refers to its meatiness, the proportion of meat to bone, the muscling, and so forth.

**Finish** is synonymous with *fatness*. Included in this term is not only the amount of fat, but its distribution. It also includes marbling, the interpersions of fat particles in the lean. In terms of eating desirability, the greater the amount of finish the better a cut will "eat." There is a very high correlation between finish or fatness and eating desirability. It should be remembered that from the purchasing standpoint, a point of diminishing returns may be reached with respect to the fatness of a carcass or wholesale cut. At the same time, one should keep in mind the fact that in terms of

*Illustrations courtesy of the Standardization Branch, Livestock Division, Agricultural Marketing Service, United States Department of Agriculture.*



Ground beef is prepared according to specifications under the supervision of a meat grader.



Accepted items are packaged, taped, and stamped with the Acceptance Stamp.



its mass, fat weighs considerably less than lean. In other words, given five pounds of lean and five pounds of fat, the lean will consist of a significantly smaller amount mass or area-wise.

**Quality** is a more nebulous term referring to the "character" of the lean, the fat, and the bone. With respect to lean, quality includes the color of lean, its texture and firmness and/or elasticity. Generally speaking, the lighter and brighter the color, the smoother or more velvety the texture, and the firmer the lean, the better. Quality of fat concerns itself with its evenness of distribution, its flakiness; it also includes marbling. Marbling makes meat juicy, tender, and flavorful.

### Age of Animal

Quality of bone is the principal indication of the animal's age. The consuming public has indicated to the purveyor, through him to the packer, and eventually to the producer that he prefers meat from young animals to that derived from old animals. For instance, beef from animals ranging in age from one to three years provides the highest quality beef. The bones of a youthful animal are bloody, porous, and moist. There are also evidences of cartilage, a form of tissue which will eventually become solid bone, but which is soft and white in youth. The so-called "buttons" at the ends of the chine bones in beef, for instance, are cartilaginous.

An understanding of these three characteristics; namely conformation, finish, and quality enables one to select meat in a scientifically proven fashion, thus providing the guest what he desires.

### Variation Within Grades

Although carcasses are graded federally with a specific name, such as "U.S. Choice," it should also be remembered that in practice the grade "U.S. Choice" may be divided into *top choice*, *average choice* and *low choice*. The carcass is never marked as such, but the discriminating meat buyer, who is completely familiar with the basis of grading, can make this differentiation, thus taking advantage of carcasses and cuts from the top end of a given grade. It should also be remembered that for oven roasting and broiling purposes, the high grades should be used; for pot roasting, stewing and grinding purposes, the lower grades are adequate. One should buy meat of a grade suitable for the purpose for which it is to be used.

### Brand Names

The various packers have established a series of brand names, specific for their respective products, which they apply to the meats they sell. These brand names have often been compared to the Federal grades. Although the criteria on which the federal and packer grading systems are based are somewhat comparable, the actual grade designations are not identical. The federal grades are more specific and are, therefore, usually more reliable.

### Acceptance Service

Shortly after World War II, primarily at the request of the purchasing agents of steamship companies, the U.S. Department of Agriculture set up its Acceptance Service. Since that time, this service has been used by a number of large scale purchasers of meat. The hotel and restaurant industry did not take advantage of the opportunities offered until relatively recently. The American Hotel Association as well as the National Restaurant Association have been consulting with the Standardization Division of the Agricultural Marketing Service, U.S. Department of Agriculture, Washington, D.C., on the possibilities of using this service more widely in the hotel and restaurant industries.

Basically the Acceptance Service consists of first writing detailed specifications for each meat item used, including packaging, shipping, receipt, and preparation for cooking, on a cooperative basis between the purchaser and the Standardization Division representatives. Very exacting specifications are thus developed which are submitted for quotations to the various purveyors under consideration. Once price quotations are received, the selection of the purveyor is made on the basis of the price he quotes, thus enabling the selection of the purveyor giving the lowest quotation. Since the specifications are so rigid, there is no room for any alteration of the specific item.

The Federal graders then supervise the selection of the meat and its specific processing (trimming, and so forth), its packaging, and subsequent shipment. The stamp indicating its acceptance is placed on the merchandise itself and/or on the container in which it is packed. It is thus certified that the products the purveyor proposes to furnish comply with the specifications established. The charge for this "supervised expert purchasing"



plan is an hourly fee of \$6.00 for the services of the grader. This places in the hands of the Federal graders the task of selecting and accepting meat for the hotel, restaurant, and club.

## Specifications

It is essential that detailed specifications be prepared for all of the meat items received by the hotel or restaurant. This is the only way in which a uniform product can be expected at all times. It takes the guesswork out of meat purchasing and establishes a firm base for securing bids and for insuring a product that meets the standards and requirements of the purchaser.

In writing specifications, one should first indicate the specific name of the meat item. A detailed description should then be given particularly listing weight range, any measurements that are necessary to further define the cut, its Federal or United States government grade (the area within the grade: *e.g. top, average, or low*; although this is not listed on the grade itself, it can be ascertained by the purchaser), the degree of trim, and the proportion of lean to fat in certain instances.

### Examples of Meat Specification

**Ground beef**, a product used by all hotels and restaurants, might have a sample set of specifications reading as follows:

It shall be composed of not less than 50 per cent fresh boneless beef from square-cut chuck and not more than 50 per cent fresh boneless skeletal beef, excluding meat from heads, gullets, tongues, and heart. It shall contain no organs, glands, or added fat. Meat shall be free of serous membranes, major tendons, cartilage, discoloration, and bloody ends or sections. It shall have no foreign odor, deterioration, or other damage and contain no extenders, coloring agents, preservatives, or added water. The boneless meat prior to grinding shall be composed of not less than 15 per cent, nor more than 20 per cent, trimmable fat. The meat shall be ground twice: first through a plate with holes  $\frac{3}{4}$  to  $1\frac{1}{4}$  inches in diameter and then through a plate having  $3/16$ -inch holes. The grinding shall be without any abnormal heating or mashing. Without further mixing, the meat shall be packaged in a moisture-resistant wrapping or container to which the meat will not readily adhere. Packages may weigh from 10 to 20 lbs. (*Taken from a USDA Acceptance Service example.*)

The grade of meat should also be indicated.

**Well-trimmed, oven-prepared ribs**, another meat

item used by practically all hotels and restaurants, might have specifications reading as follows:

Top Choice grade 7-rib cut, to measure on the flank or tail, no more than  $1\frac{1}{2}$  inches from the meat of the main muscle (eye) on the loin end and no more than  $4\frac{1}{2}$  inches from the inside of the chine bone on the chuck end. It must be cut straight between these two points. The bones must be porous, with buttons on the ends of the ribs, and clean white fat. The chine bone must be removed squarely to where the meat splits. The ribs must weigh not less than 23 lbs. and not more than 27 $\frac{1}{2}$  lbs.

## Receiving and Storing

Upon arrival, all meat and meat products must be thoroughly checked to determine whether or not they meet with the specifications established by the hotel or restaurant operator. If the USDA Acceptance Service is used, then the seal of the acceptance on the meat or on the package will suffice for grade designation. Otherwise, the receiving room clerk should be qualified to establish whether or not the meat is "in order." Weights must be taken and checked with the invoices on all items. The condition of the meat — for instance, in the case of fresh meat, its level of *freshness* — should be ascertained; its *sanitary* aspects should be noted; and if everything is in order, it is ready to be accepted.

Once accepted, it becomes the responsibility of the operator to keep the meat in excellent condition until it is served to the guest. This includes correct *storage, processing, and preparation*.

Cuts of meat which are packaged in paper and stockinette, such as beef hindquarters or lamb backs, should have this covering removed so as to allow the circulation of air around the meat item, thus avoiding a moistening which will be conducive to bacteria. The temperature of the meat cooler should range from 32°F. to 36°F. Portion-ready cuts, such as steaks, should be separated in layers of kraft paper.

Meats to be frozen should be processed to the point that they are as close to the stage in which they will finally be prepared as possible before freezing. They should be properly packaged and promptly frozen.

All of the meats should be moved out of the cooler, prepared, and served, as promptly as possible. This is particularly true for pork, which is very subject to oxidative rancidity. There should be a complete turnover of the fresh meat contained in the cooler at least once a week. ●

# Earning Full Value in Purchasing of

## Fruits, Vegetables, Poultry and Game

A Chicago produce dealer tells food operators how to get real dollar value in purchasing from purveyors.

by Mickey Houston<sup>1</sup>

As the head of my own business, Mickey Houston, Inc., I am a large-scale produce dealer. But if I were on the other side of the fence—a hotel man, a restaurateur, or an institution manager—I would follow an explicit set of rules in dealing with a produce man like myself to make certain that I get the best quality of produce for the price I pay.

For more than twenty years I have been a wholesale supplier of fruits, green vegetables, poultry, and game. Anyone who started in business during the depression days and kept going during World War II has needed to know all the angles. Let me present the case for the produce



*Mickey Houston compares a prime head of cauliflower with one that is over age. For institutional buying, cauliflower should be large and clusters white and tightly bound. Bottoms should be dry.*

dealers. Ours is a seasonal business and we deal in perishable products. The produce shipped to us by the growers is not uniformly good because of weather and other conditions. The prices we must pay for produce, good or indifferent, doesn't always bring a profit in the market place. So there is a strong temptation to "hedge" our losses at the food operator's expense because our own position is a precarious one.

Because of this situation, I didn't see any point to sticking to the rules for fair play until about twenty years ago when one large restaurant purchaser called my hand. He told me that if I wanted to keep his highly desirable account I must meet his specifications to the letter and at a fair, competitive price. If I fell below in either, he would take his business elsewhere. I needed his account to stay in business. I proceeded to meet his specifications at a fair price and my business flourished because other large purchasers wanted the same deals.

### How to Purchase

Any ethical produce man who knows his business can be successful in holding his customers if he meets the rules for fair dealing set forth in this article. His customers, the food operators, are aware of the hazards he faces as a produce dealer, and they must have confidence that he will fill

<sup>1</sup> Mickey Houston is a veteran of more than twenty years in the wholesale produce business and head of Mickey Houston, Inc. He supplies leading hotels, restaurants, and clubs in metropolitan Chicago and does an impressive national business in game and exotic foods. He popularized Bibb lettuce, Rock Cornish hen, Paradise Bird, and sells such things as buffalo, venison, bear, kangaroo meat, whale meat, and tuna tongues. This article is adapted from an address he gave before the Sixth Annual Workshop on Hotel Management held at Cornell University, January 25 to 29, 1960.

their orders with the best produce available that meets their specifications. As for the institutional buyer—who must watch food costs, labor costs, and menu prices in a competitive market—to him these rules are a *must*.

- Place your orders by specification, being explicit about size, grades, and type.
- Obtain competitive bids on your purchase specifications.
- Check deliveries, carefully against your purchase specification, making sure you get what you pay for. Be sure your scale is always in good working condition.

### Specifications

The key to good purchasing is to know government grades—federal, state, and municipal—and to have your own standards firmly in mind as a check point. It isn't always necessary to purchase the top grade, unless appearance and size directly affect the item served to the guest. For example, grapefruit used for fruit cup doesn't have to be the same size, shape, or grade as that you serve in halves for breakfast. Celery and carrots that go into soups don't need to be of the same size and quality as those you serve on relish trays.

When top quality is not required why pay the purchase price for top quality? Order secondary qualities by specific grade.

For help in writing up your specifications, ask the Perishable Division, Marketing and Produce Section of the United States Department of Agriculture (Washington 25, D.C.) to put your name on their list of institutions to receive their daily report on produce for your area. Thereafter, you will regularly receive U.S.D.A. information on sizes, grades, and prices.

**Federal Grading.** Since 1917 the Federal Government has been inspecting and grading produce moved across state lines. State and municipal governments also inspect and grade local produce. Some producers' association, such as Sunkist and Blue Goose, market their best produce under brand labels that command premium prices. You should become acquainted with these various grades and labels, so that you realize what they mean as well as what they do not mean.

The Federal Government grades are broad and flexible, because the growers' crops are not uniform from area to area or from season to season. A few choice items may be classified as U.S. Fancy,

but this grade is seldom found on the common market. U.S. Grade No. 1 usually includes a large portion of any domestic crop and may mean first or second quality, depending upon the product.

U.S. Grade No. 2 includes that part of the crop that has value but doesn't, for some reason, have the good appearance or usable features of the No. 1. U.S. Commercial and U.S. Combination describe grades intermediate between No. 1 and No. 2. The "orchard runs" or culls are seldom shipped.

Within the range of this broad grading system, some growers' produce meets only the minimum standards while other growers' produce constantly averages above the minimum. The grade standards are fixed at the point of original shipment and this is by no means a guaranty, because of time and handling, that the quality will be the same at the point of ultimate destination.

The food operator's safeguard is to specify the size, type, and grade he wants on his purchase order (e.g., U.S. #1 Idaho Russet Potatoes, 6-7 oz., 100# to the sack). Then he should check what is delivered to his receiving room against his specifications and his own standards.

### Competitive Bidding

By obtaining competitive bids on your purchase specifications, all things being equal, you can obtain the lowest price. True, operators buying in small quantities may find it time-consuming as well as awkward to obtain deliveries if they try to purchase a carton of lettuce from one dealer and a bushel of spinach from another. For small operations, the best procedure is to obtain an overall bid on the day's purchases and place the entire order with the dealer making the best price. Check the prices your purveyor asks of you against the government's published quotations for carload lots coming into your area. While your produce supplier may not purchase by the carload, the prices he quotes you should follow the trend for carload lots.

Later in this article, I shall outline a cost-plus purchase plan that some large-scale operators find money saving.

### Receiving

Real inspection begins in your own receiving room. If you specified U.S. Government Grade No. 1, make certain that the produce delivered to you meets these standards so far as size, type, weight,

and count are concerned. *Pay only for what you get.* Otherwise, you may be bilked. Poor receiving is an open invitation for the produce dealer to short-change you. I've seen it done. Only by your constant checking can you hope to maintain your own standards, to uphold government standards, and ultimately to help root out the produce men who supply below-standard goods.

See that your receiving room clerk is well acquainted with government regulations on grading systems and labeling. Upon request, the Fruit and Vegetable Division of the Agricultural Marketing Service of the U.S. Department of Agriculture in Washington will send you its series of grading standards for fruits and vegetable. Supply your receiving room clerk with scales and equipment for checking specifications, and, most important of all, with a copy of the specifications you are purchasing against.

### Get Acquainted with Your Dealer

Get to know your produce dealer and visit him *unannounced* at his place of business. Then you can see not only how clean he keeps his place, which is important for sanitary reasons, but also how large an inventory he keeps.

If your dealer has only a few sacks of potatoes and a carton or two of lettuce on hand, he probably conducts a hand-to-mouth business and finances himself with your money. As a small operator, he cannot afford to buy fruits and vegetables in carload lots and thus buys only a few items direct. Instead, he deals with a commission merchant who does buy by the carload and who sells to him at a markup. This small operator, if he values your account and if he knows his business, can buy produce for you from a commission merchant and give you good value. Go with him some time and see how he buys. Does he buy quality or does he haggle for bargains regardless of quality?

The large-scale produce dealer who carries a sizable inventory is in the best position to meet your specifications at the right price. He buys carload lots, eliminating the fee of the commission merchant. As a rule, he knows quality and buys shipments from growers whose produce generally exceeds the minimum standards set by Federal grading. He can offer you not only a broader selection of produce but also a wider range of qualities within each grade. He is thus in a position to offer you genuine bargains.

### Bargains

When you are offered a bargain in produce, look into the quality with great care. If the quality is good and the price is low because of over-abundance, then it may be a bargain. If you have immediate need of the produce or can store it suitably and economically for future use, well and good. But if the "bargain" is an over-supply of low-quality or over-mature produce which the dealer is clearing out, beware! It is not a bargain.

### The Cost-Plus Purchase Plan

Many food operators now follow the practice of setting up cost-plus plans in purchasing from produce dealers. These arrangements are working well in cities such as Denver, Kansas City, and Chicago. The details of such cost-plus plans are very much as follows:

- The food operator agrees to place all of his produce orders with one dealer, ordering at a set hour at least one day in advance of deliveries.
- The produce dealer agrees to sell at cost (USDA quoted carload prices in his area) plus a commission of about 15 per cent.

This plan works well provided certain stipulations are made in the original agreement. The produce dealer needs to hedge his "costs" at the top price for U.S.D.A. quoted carload lots, which he may sometimes need to pay to fulfill the order. The food operator needs to regulate the quality of the produce delivered to him by stipulating that a U.S.D.A. inspector examine the produce for grade and quality, either within his own establishment or at the distribution point. The minimum cost for such an examination is \$3.25 plus mileage. The USDA inspector gives you one copy of his report; sends one to the dealer; and keeps three more for government files. These examinations can be made at irregular, unannounced intervals and yet keep the produce dealer in line.

This cost-plus plan not only gives you the status of a preferred regular customer, so far as the dealer is concerned, but it also saves you a substantial sum of money. Try this. Ascertain from your records the amount of money you spend annually for fresh fruits and vegetables. Next, bear in mind that your produce dealer customarily marks up his goods from 20 to 30 per cent on most items. Then, calculate a straight 15 per cent commission on your annual expenditure. The saving



on commission by this cost-plus plan can be substantial. You can also see that the size of the 15 per cent commission represents a substantial account to your produce dealer—large enough for him to try to meet your specifications and keep you a happy customer. You both benefit by such an arrangement.

### Frozen Vegetables

Many food operators, because of the labor involved in preparing fresh vegetables, use frozen foods. I believe in the merits of frozen vegetables, even though they do not compare with fresh ones. On a fifty-two week basis, which frozen foods are best? An investigation made by my company shows that frozen peas and frozen lima beans rank high.

**Peas.** When you order frozen peas, inspect the packages to make sure that they are new. Open a package or two. The peas should be frozen in little chunks. Roll your fingers several times across the peas in the open package. If the peas become wrinkled, the pack is old. You can also tell how large in size the peas are and the color.

**Limas.** The large, Fordhook limas seem to react better to freezing than do baby limas. Freezer burn should be readily apparent when packages are opened. Fordhook limas should show more green than white, with a little white spot apparent at the "heart," if the pack is fresh and of good quality.

**Broccoli.** Frozen broccoli is also good, but it is important to know the pack. Both shoots and heads are available (*watch the label!*) but the heads are the best buy as the shoots are largely stems with bits of head added for decoration.

**Onion Rings.** Frozen onion rings are a new item on the market that warrants trial. They are not so good as freshly sliced onions, dipped in batter, fried in deep fat, and then rushed to the table. But, because of preparation time, frozen onion rings will win acceptance in many establishments.

### Canned Foods

Two canned foods deserve special mention: white, canned asparagus from France and canned Irish oatmeal from Ireland. The best white asparagus is thumb size and it is a better buy than the

No. 2 quality which is packed in smaller cans. Buy the cans by grade and weight. The Irish oatmeal is a genuine gourmet product.

### Poultry

The squab is rapidly gaining in favor over the Rock Cornish Hen which I helped introduce to the market. Some packers are misrepresenting the Rock Cornish Hen with an inferior-type bird and the U.S.D.A. is investigating them. The best size Cornish game hen to purchase is the 12 to 14 oz., eviscerated.

The Paradise Bird is the newest item on the poultry market. It is winning favor because it comes completely boneless and the meat is all white. This Paradise Bird is a cross between the quail and the partridge and was developed by the University of Georgia.

As for pheasants, the cock is the heavier and sells for a much higher price. Don't feel that you must buy equal numbers of cocks and hens. The meat of the hens is of higher quality and it is cheaper for the amount of meat obtained.

As for Mallard duck, buy them between 2 and 2½ lbs., never larger; otherwise, you get a "breeder" bird.

### Game

Game on the menu adds distinction in the opinion of some well-heeled guests. But you should pick game with the best food cost and which will be most succulent when prepared. Venison ranks higher than elk on this score and elk ranks ahead of bear. If you buy bear steak from a local dealer, ask for the hind quarters. The fore quarters are good only for stew. Bear meat is grainier than elk and for this reason elk steaks are preferred to bear. But neither compares with venison, a game that can be made into a real gourmet dish.

### Other Specialities

For your Luau or Polynesian dinners, your produce dealer can get you the ingredients you need if you let him know far enough in advance and permit him to pay enough. Baby suckling pigs, mangoes, and papayas can be obtained at any time of the year. Ti leaves and galex leaves are also available.

REPRINTS of articles appearing in this publication are available at 50¢ each or 35¢ each for ten or more copies. Orders must be placed before the end of the month during which the publication appears. Address orders to the School of Hotel Administration, Cornell University, Ithaca, New York.



## MICKEY HOUSTON'S BUYING CHART

Item (When on Market)		How (Purchase, Unit, Weight, Count)
APPLES	(Cooking) July-Nov	2½ in Min Bu. 48#
APPLES	Eating-baking Nov-March	45# boxes 56-163 count
APRICOTS	June-August	18# & 22# lugs 6-10 row
BANANAS	All the time	40# boxes 3 bananas to lb.
BERRIES	Local June-August Out of season Sept-May	½ pint, pint, quart
CANTALOUPE	May-Sept	23, 27, 36, 45 count per case
CHERRIES	May-July	12# and 15# lugs 7-8-9-10-11-12-13-14 row
COCONUTS	All the time	50 & 100 per sack - sold by dozen
CRANBERRIES	Oct-Dec	24-1# cello bags or boxes per case
GRAPES	Red—Oct-June Black—July-Dec	Green—June-Nov
GRAPES		28# lugs & 10# Concord variety baskets
MANGOES	Nov-Jan	8-10-12 count per box
MELONS (Honey)	July-Nov	6, 8, 9, 12 count per case
MELONS (Persian)	Aug-Nov	5, 6, 8, 9, 12 count per case
MELONS (Cranshaw)	July-Nov	5, 6, 8 count per case
MELONS (Water)	June-Oct	25# - 45#
PERSIMMONS	Nov-March	24-28-30 row per 15# flat
PEACHES	May-October	50# bushel, 18# - 24# lugs
PEARS	Bartlett—July-Feb D'Anjou—Oct-April	50# boxes 80-180 count per box
PINEAPPLES	All the time	9, 12, 15 per case
PLUMS	Red—June-July Yellow—July-August	Purple—July-Sept
PLUMS		4 baskets to box; 3x4, 4x4, 4x5, 5x5 sizes
ORANGES (Calif.)	Navel—Nov-March Val—April-May	48-180 count per carton
ORANGES (Fla.)	Feb-June	82-100 count per carton
GRAPEFRUIT	Calif—March-Aug Florida—Nov-March	18-48 count per carton or 36-96 count per crate
LEMONS	All the time	95-235 count per carton
FIGS	June-Nov	5# trays 40, 56, 60, 70 per tray

## FOR FRESH FRUITS AND VEGETABLES\*

### Why (Quality, Description)

Good oval shape, hard firm texture Greenings, Rome Beauty, McIntosh—Avoid softness, bruises, poor color

Good oval shape, hard firm, Jonathan, Winesap, Delicious, Rome Beauty—Avoid softness, bruises, poor color

1 1/2 - 2 1/2 inches min. diameter, when ripe skin golden yellow—Immature are greenish yellow, hard, mildly bitter

2 1/2-3 bananas per lb. plump, good yellow color—Avoid small thin bananas; free of black spots and scars

Bright, distinct coloring, firm & dry—Avoid faded color, wet mold, soft or crushed, check boxes for stain

Heavy for size, sweet fragrance, outer skin high bleached gray or yellow smooth netting. Slip at stem to be smooth, deep & dry

Firm, plump, deep red color, fresh stems—Avoid soft, mold, pale red, decayed spots

Heavy for size, milk sloshes about when shaken—Avoid mold or wet eyes, absence of milk in shake test

Bright, clean, hard, good red color—Avoid soft, decayed & wet berries. Fresh berries should bounce

Firm, plump, fresh green stems attached to well formed clusters—Avoid decayed & brownish stems, soft grapes

Vari-sized, red, green, yellow, orange or any of these color combinations, mango cross between apple & peach, exciting flavor

Oval shape, oily, yellow creamy skin, very slight netting—Avoid extremely hard & smooth & misshaped melons

Distinct netting, bleached gray skin, slight give to touch—Avoid dark green skin, over rough netting, soft wet spots

Smooth, bleached orange yellow, heavy skin, opposite ends of stems should give slightly to touch

Well formed, 30# - 40# avg, dull green appearance, underside of melon should be a bleached color

Medium size, yellow to dark red in color, soft to touch, paper thin skin. Avoid undersize, immature, green color fruit

Firm, whitish or yellowish color, some red coloring according to variety—smooth skin, free of blemishes. Avoid circular spots.

Well formed, not over ripe, stem end of pear to be firm. Avoid broken skin, scars, sunburn

Well formed, distinctly pointed with flat bottom, good tops, sweet odor when skin is yellow orange color. Avoid wet butt

Semi firm but not soft, bright coloring according to variety. Avoid shriveled skin, dull color, overly soft & decay

Heavy for size, good orange color, heavy smooth skin. Avoid thick rough skin, free of softness at stem end

Heavy for size, bright, polished, smooth skin. Avoid rough heavy skin and light weight for size

Heavy for size, firm, clean & smooth skin, bronze or clear yellow in color. Avoid flat, pointed shape, thick rough skin, soft end at stem

Firm, clear bright yellow color, waxed smooth skin. Avoid brown specks, misshaped, shriveled points & thick skin

Greenish yellow to purple to almost black in color, distinctive pear shape. Fairly soft to touch. Avoid dry hard skin and wetness

\* Optimum storage temperatures for fresh fruits and vegetables, as well as other foods, are given in Chapter 4, pages 52-95, of *The Technology of Food Preservation*, Dr. Norman W. Desrosier, Avi Publishing Co., Westport, Connecticut, 1959.—Editor.

Item (When on Market)		How (Purchase, Unit, Weight, Count)
AVOCADOS	All the time	10-12-14-16-18-20-24 count per box
ARTICHOKE	Sept-April	24-30-36 pieces per box
ASPARAGUS	Local June Out of season Jan-May	Net 15# & 30# crts 2½-3# per bch, 12 bch per box
BEANS	All the time	Net 28# hpr or bu
BROCCOLI	All the time	14 hd per crt. 1½# per hd
BRUSSELS SPROUTS	Oct to March	Net 25# drums 1¼# per quart bskt
CABBAGE	All the time	50# sks - 50# crts - 75# crts
CARROTS	All the time	50# sks - 75# crts 5, 6, 7 dz bchs per crate
CAULIFLOWER	All the time	9-10-12 hd crts min size 1½# - max size 2½# per hd
CELERY	All the time	1½-2-2½-3-4-5-6-8-10 dz to crate
CELERY-CABBAGE	All the time	45# bu - 15# lug
CHICORY	All the time	12# bskt; 20# bu. - 4, 5, 6 doz crates
CORN	Local July-Sept Out of season Jan-June	4-5 dz per sack, 4-5-6 dz per crate
CUCUMBERS	All the time	50# bu 10-12 dz per bu.
DRY SHALLOTS	Sept-May	Dry shallots per lb
EGG PLANT	All the time	1# - 1½# hd. 2-3 dz per bu or hamper
ESCAROLE	All the time	20# bu or hpr 2-3-4 dz hds per crate
ENDIVE (imp)	Nov-April	10# cartons 48-60 pieces per box
GARLIC	All the time	50# sacks 18-20 bulbs per lb
LETTUCE	All the time	1½, 2, 2½ dz hds per carton
BIBB LETTUCE	All the time	30 - 36 hd per basket
LEEK	All the time	4-5 pieces per bch
MUSHROOMS	All the time	16-20 pieces per 1# box
ONIONS (Lg Span)	All the time	50# sack
PEPPERS	All the time	20# - 25# bu. 8-10 dz per bu, 40# crts 10-12 dz per crt
IDAHO POT	Sept-April	100# sacks or 50# cartons
CALIF POT	April-Sept	100# sacks
RED POTATOES	All the time	100# sacks
NEW RED POT.	Nov-June	50# & 100# sacks
SWEET POTATOES	Sept-March	50# hampers
ROMAINE	All the time	20# bu, 2 dz cartons, 4 & 5 dz crates
SPINACH	All the time	18# bushel, 25# crates
SQUASH	Winter Oct-Feb Summer June-Sept	50# bushels or 70 - 80# crates
SQUASH (Ital.)	All the time	10# basket - 25# hamper
TOMATOES H.G.	Aug-Sept	5&10# basket - 28# lugs, 25# ½ bushel
TOMATOES	Oct-July	5&10# basket - 28# lugs

## Why (Quality, Description)

Calif—pear shaped, free of dark spots, firm, smooth—Fla—round shaped, free of dark spots, firm, smooth
Uniformly green, tightly bound scales (open scales likely to be tough & woody)
Firm, stalk $\frac{2}{3}$ green, dry and unbroken tips—check base of bunch for accurate sizing
Soft, fresh green appearance, free of decayed ends & rust
Large all green heads, small & compact buds—loose buds & open clusters show age
Firm, bright green appearance—yellow leaves & puffiness denote age & bitterness
Solid, firm, outer leaves close to base, heavy for size—free from rot at butt & worm holes
Bright orange, smooth, uniform—free from soft ends, yellow color & limpness denote woodiness
Heavy hds, white and compact clusters—free of dark & yellow color, open clusters & loose buds
Crisp, straight stks, fresh tops, large base heart formation—free of irregular, split, stringy ribs & decayed tops
Long, tightly bound leaves, cone shaped—free of dark spots, and soft rot at base of stalk
Crisp, light green with bleached heart formation—poor chicory is dark green, without bleached heart formation
Green tassels, husks tightly wrapped, well filled, plump, even rowed. Avoid dry husks with uneven rows. Denotes toughness
Firm, dark green, smooth skin, straight—Avoid sharp pointed ends & soft tips with discoloration
Dry full covering with no breakage to cloves
Smooth, firm, heavy for size, bright, glossy purple color—Avoid scars, dull color & lightweight
Crisp, light green, with bleached heart formation—poor escarole is oversized hd without bleached heart formation
Tightly bound, cone shaped, stark white—Avoid yellow color, loose leaves & open tips
White, large, solid cluster
Firm, heavy head, short butt, evenly round hd—Avoid misshaped heads, overgrown butt & outer rust
Rose shaped head, compact leaves, pale green, medium size—Avoid large hds, overgrown center root
Firm, thick leaves, tightly bound, dry tasseled ends at butt—free from slime & avoid undersize
Clean, white, moist, short butt, stem attached to cap—Avoid broken, black & open caps
Solid, oval, dry & brittle—Avoid soft ends, wetness, splits or doubles
Good green color, shiny appearance, firm, well shaped, heavy for size—Avoid soft rot at stem, misshaped & poor color
Firm, uniform in size, free from sprouts, cuts, bruises, hollow hearts
Firm, uniform in size, free from sprouts, cuts, bruises, hollow hearts
Firm, clean, free from too many deep eyes, dry—Avoid undersize off color, scars, worm rot from deep eyes
Firm, smooth, paper thin skin, oval shape—free from decay, undersize, softness
Firm, bright, well shaped, good size—Avoid small, misshaped, soft ends, faded color
Bright green, tightly bound leaves, cone shaped—Avoid rust, oversized butt
Fresh, large, dark green leaves—Avoid undersize, poor color, slime
Firm, healthy skin, heavy for size—Avoid soft ends & decay, faded color
Medium size, dark green, firm—Avoid overgrown, faded discoloration soft ends
Firm skin, smooth, glossy & bright—free from bruises, avoid dark spots around stem, misshaped
Firm skin, smooth, glossy & bright—free from bruises, avoid dark spots around stem, misshaped



## FRUIT

### BANANAS

A banana is fully ripe when it is a high yellow color with brown flecks. Bananas should be bought by the "hand" when green. For cooking, use green bananas; for baking, use bananas "on the turn" (yellow in the middle with green ends). For fruit cups and salads, use ripe bananas. Bananas ripen at 55°F. or higher; when fully ripe, store them at 40°F. Their skins will turn dark after about 48 hours storage at this temperature, but when bananas are served peeled, the skin doesn't show. Ripe bananas can be stored in the refrigerator for several days without the flesh deteriorating.

### COCONUT

The size of the coconut has little relation to quality. As a check for ripeness, shake to see if it has milk. Pierce the three eyes with a sharp, pointed instrument and drain out the milk. Next, heat the coconut in a 400 degree oven for ten to fifteen minutes. Then crack open the shell with a heavy, blunt instrument and use a knife to separate the meat from the shell. Store the meat in a tightly covered jar in the refrigerator. The shells, when cleaned and dried, make attractive containers for sauces at Luau dinners.

### GRAPEFRUIT

Grapefruit should be oval, firm, and heavy for its size, and the skin should be smooth. Small grapefruit often weigh more than large ones. The Size 27 is the best all-around buy, although you may want to use 32's for breakfasts and banquets. The 23 size is often puffy and poor in quality. Avoid grapefruit that is soft at the stem end, that has a rough skin, or that is not round in shape. Good grapefruit can range from pale yellow to russet in color. Russet fruit may be tastier and juicier. The many varieties can be classified simply as "seedless" or "with seeds"; "white meat" and "ruby red" or "pink."

### LEMONS

Lemons are shipped in three sizes with most of the small ones going to retail grocers. Smaller lemons are often the most acid. Obtain quotations on all three sizes and purchase the best bargain by weight. Check quotations for brand labels against the so-called "independent" brands for a good price comparison.

### LIMES

Limes should be bought in the same manner as lemons. The yellow Mexican limes are excellent for cooking and for special bar drinks. Their flavor compares favorably with that of green Persian (Tahiti) limes and, although smaller in size they are also much cheaper.

### ORANGES

Oranges are graded by the growers' associations for size, shape, and appearance. The "independents" do not have the attractive appearance of the "brands" but the quality may be good, and the weight per carton is often higher than that of the "brands." Look for quality with a good yield and weigh the cartons when they are delivered. Check for an offensive orange odor; if noticeable, decay has probably started at the center of the carton.



## MELONS

Besides the cantaloupe and the watermelon, there are four major types of melons: Honeydew, Casaba, Persian, Cranshaw, and Spanish.

Ripeness in melons causes the most complaint from patrons. Squeezing and thumping melons merely injure the flesh. Try these tests: examine the stem end; if it is green, the melon isn't ripe, but if it is turning high yellow, deep orange, or light brown, the melon is ripe. Feel the blossom end; if it gives a little, the melon is ripe. Unripe melons should be stored at room temperature away from the kitchen heat and the sun. When melons are ripe, store them in the walk-in refrigerator. A ripe watermelon, when slapped, has a high, vibrant sound; a dull "thud" signals over-ripeness.

## PINEAPPLE

This tropical fruit is shipped into the domestic market from Cuba, Puerto Rico, and Mexico in the green stage. The female pineapple, which can be recognized by small auxiliary shoots next to the top "cone", have the sweetest flavor. The more white showing at the stem end, the better, but the bottom should be dry if the fruit is in good condition. The "eyes" of the fruit should be perfect—not bruised, underdeveloped, or sunburned—and the color may be either green or brown.

## POMEGRANATES

Pomegranates with the best flavor are obtained in the fall. Quality has no relation to the size. Purchase pomegranates individually. To remove the juice, follow this procedure: roll them on the table until you can hear the membranes crack. When the pomegranate is as soft as a rubber ball, cut a dime-sized hole in its side and squirt the juice into a dish. Then cut the pomegranate in half and scoop out the seeds. Flavor fruit cup with the juice and decorate it with the colorful seeds.

## VEGETABLES

### ARTICHOKES

Adults like to eat with their fingers, just as children do. Artichokes are now fairly reasonable in price, can be prepared easily, and add glamor to menus. The season (winter) is short. The artichoke is the thistle-like bud of the plant. The edible part is the fleshy white meat at the base of each petal and the center or heart. The globes should be uniformly green, compact, and free of damage from worms, snails, insects, and freezing. Black-tipped, dull green or brown scales (leaves) with hard, leathery, or spreading tips indicate that the artichoke is over-mature and that the meat will be tough. Brown spots are not objectionable. Size has little to do with flavor or quality. The box should give the numerical count and minimum size.

### ASPARAGUS

Asparagus should be ordered by size and by the bunch, as it ages rapidly. The little-finger size is cheapest; the thumb-size, most expensive. Heads should be undamaged with close, compact tips. The stalks should be tender and easily punctured with the finger nail. Stalks should also be fairly straight and at least two-thirds of the stalk should be green. Spreading or broken tips, misshapen or flabby stalks indicate poor quality. Run your finger across the top of the bunch.

Any moist heads should immediately be removed because they will disease the bunch; pull them out from the bottom. The real test for size is made by examining the bottom of the bunch. Look for even bottoms like a bunch of unsharpened pencils. Store asparagus in the refrigerator by standing them in trays containing a little water.

## AVOCADOS

Avocados are tropical salad fruit that once sold for about \$1 apiece. Now they are reasonable in price and are delicious in salads or as containers for seafood appetizers. The oval "avocado" comes from Florida, Mexico, and Cuba. The pear-shaped Calavo (brand name only) is California-grown (*California-Avocado*). For quality, I prefer the Californian avocado. Buy them green. The quality of the fruit is not affected by light brown marks or a small area (10 per cent) of scab on the skin, but avoid fruit which has no stem or which has the skin punctured, bruised, soft, or having dark sunken spots.

To test for ripeness, do not squeeze; this bruises the fruit. Instead, place the avocado in the palm of your hand and grasp it gently. If it "gives" slightly, ripeness is indicated. A better test is to remove the stem and insert a toothpick. If the toothpick doesn't have to be forced, the flesh is ripe. If the toothpick must be forced, the fruit needs further ripening for two or three days at room temperature away from the heat or sun. Ripening is retarded by putting avocados into the refrigerator.

To prepare avocados, cut down from the stem on both sides; then, the avocado falls open when twisted in the palm of your hand. Once cut, the meat quickly darkens. To store temporarily, place unpeeled halves face down in a dish containing a thin layer of citric juice and store in the refrigerator. Sprinkle cut sections thoroughly with citric juice for storing. Unused avocado, when mashed, makes a good base for salad dressings or for hors d'oeuvre spreads.

## BEETS

Beets, an inexpensive, fresh vegetable, are not served as often on restaurant menus as they should be. They can be served raw to give color to salads or cooked. Beets come bunched with fresh young leaves that make excellent cooked greens; larger-sized beets with short-trimmed stems come in packages. For cooking, medium-sized, short-trimmed beets are best, for the large ones have deep, target-like lines when sliced which young beets do not have. Avoid large, ill-shaped beets as they may be pithy and hollow.

## BROCCOLI

Broccoli, a member of the cabbage family, comes in bunched stalks, like asparagus, or in solid stalk heads. Broccoli should be purchased by the head rather than the crate as it ages rapidly. The heads should be green or purplish green and the buds tightly bound and free of insect damage. Over-mature heads are open and show the bloom or sometimes a light color. Shake the bunch. If the buds fly off readily, the broccoli is old. The stalks should be tender, easily punctured with the finger nail, and not too leafy. Store as you do asparagus by standing the bunches in trays containing a little water in the refrigerator.

## BRUSSELS SPROUTS

Brussels sprouts are miniature cabbages that grow on the side of the bush stem. They are sold in drums or by the quart. It is best to purchase them by the quart and inspect the center of the box to see that the sprouts are uniform in size and quality. The No. 1 grade may be large (not more than 2½ inches) or small in size. Good sprouts are hard, compact, and green in color. If they are yellow or flabby, the quality is not good. The test is to squeeze them; if they yield but slightly to pressure, they are all right. Worm holes in the outer leaves signal more damage within. A smudged green color indicates the probable presence of plant lice.

## CABBAGE

The food cost for cabbage is low 52 weeks a year. In cost, cabbage ranks just slightly higher than potatoes. Many varieties are available, but basically there are only three: old (white) cabbage; new (green) cabbage; and red cabbage. For cole slaw, use white (old) cabbage. Red cabbage is colorful in green salads.

Green cabbage, including Savoy, and red cabbage are served as cooked vegetables. White cabbage should be well formed, heavy for its size, and be free of insect and worm damage. Holes in the outer leaves may be due to weather instead of worms. Green cabbage heads should be reasonably firm and well trimmed. You can buy cabbage by the bushel, sack, or crate. The growers do not ship cabbage in bushels, so inspect what is in the basket. To inspect white cabbage, feel the butt-end of the head. If dry, the head is good; if wet, the head is decayed through the center.

Before storing cabbage in the walk-in box, always remove the wilted outer leaves, but spread them over the layer of cabbage heads to keep them fresh. The outer leaves still on the heads contain the most vitamins and nutrients and this practice prevents further wilting of leaves that must be discarded.

## CARROTS

Carrots are now packed in 25 or 50 lb. transparent film sacks. New carrots are thin, have a thick base, and are lighter in color than mature carrots. Mature carrots are larger, darker in color and fine for use in soups and stews. Examine carrots through the film bag to determine their size. They should all be approximately the same size. Open the bag and dig into one or two carrots with your finger nail; if the carrot is young, you can readily dig out a piece. Avoid carrots that are washed-out in color and that have wilted, forked, or mishapen roots.

## CAULIFLOWER

Cauliflower is still another member of the cabbage family. The box heads come in should have the grade and label on it and the count. In ordering, ask, "How much is size 9? Size 10? Size 14? or size 15?" Buy the biggest size for the best price for it is most economical for institutions. Two heads of cauliflower may appear to be the same size until the outer leaves are stripped off. Good quality cauliflower should be white in color with the clusters tightly bound. If the color is yellow or creamy and the clusters are open, ricy, or loose, the cauliflower is over-mature. Also, look out for mold and hollow stems. If you get film-wrapped cauliflower that is trimmed up, the chances are that it is old stock with the mold cut off.

## CELERY

Celery comes in two general types: Pascal (green) and white (blanched). More Pascal celery is now sold than white. Celery comes packed in grades with anywhere from 2 dozen to 10 dozen stalks in the crate. In ordering, be specific. Ask, "How much is Pascal celery in 4 dozen size?" Similarly, ask for prices on other size celery; otherwise, you may be charged any price. The largest size is economical for institutions that can use the outer branches for soups, stews, etc. Order the smallest size if you need only celery hearts.

To test for freshness, grasp a stalk—it should "talk back." Stalks should be brittle and the branches break easily. Stringy celery or celery with heavy ridges and growth cracks is not good. Inspect the root end; it should be dry and solid. Yellow leaves do not signal age—the celery simply had an oversupply of mineral food.

To test for over-maturity, run your hand down the center of the stalk. A pencil-like seed stem growing up from the heart indicates the celery is over-mature and probably bitter. Avoid stalks with dirt caked between the branches as it will be hard to clean.

## GREEN CORN

Fresh corn on the cob is now available year round. Growers pack corn in sacks or wire-bound crates, 3, 4, and 5 dozen to the crate or sack. You must insist on getting the proper count. Buy local corn in preference to shipped-in corn. In purchasing corn, examine the tassels or silk strands. Look for green tassels, tightly-wrapped husks, and even-rowed, plump, well-filled kernels. Dry husks and uneven kernels indicate toughness. Check the tip of the ear; the closer the kernels come to the end of the ear, the better quality the corn. Make a fingernail test on several kernels to see if they are full of milk. The milk should pop out easily. When crates or sacks are received, dump the corn and spread out the ears. Shuck only the number of ears needed a few minutes before cooking.

## CUCUMBERS

Cucumbers should be medium-sized, dark green, and firm. A large cucumber is seldom a bargain—usually it is pithy or hollow. Hot-house grown cucumbers come packed a dozen to the box. Grading ranges from U.S. Fancy down to No. 2, but grading can mean very little. Cucumbers should be straight and a long oblong in shape. Inspect the stem end; it should be hard and firm. If the end is soft, the cucumber is old and probably pithy.

## EGGPLANT

In India, eggplant was once used as a dentifrice bleach. Now it appears under many different names on the menu. Eggplant is cheap and it can be "glamorized." Buy eggplant individually, for it is perishable. Buy medium-sized, globular eggplant that is firm, heavy for its size, and a glossy purple in color. As the outer skin is tough, small blemishes on it do not affect the meat, but avoid bruised and cut globes.



## ENDIVE (BELGIAN OR FRENCH)

Imported endive is the prince of vegetables. Because it is expensive, it should be bought by the pound and carefully weighed upon receipt. Imported endive can be served fresh in salads or cooked as you do asparagus. Its crisp texture does not change when cooked, so that it can be prepared in advance. Good quality imported endive may be large or small in size, but each "cone" should be white with the tips tightly bound and heavy for its size. Yellowness and loose tips indicate that the endive is old. Large "cones" often tend to be flabby.

## LETTUCE AND SALAD GREENS

*Head Lettuce* now comes vacuum packed in cartons and it is fresher than formerly when it came packed in crates with layers of ice. Grade No. 1 head lettuce should weigh at least 45 lbs. to the carton. Order by size: 18, 24, or 30 to the carton. In inspecting head lettuce, conformation is important; the head should be firm, compact, and round. If it has a noticeable butt or elongated shape, it is not of good quality. Smash a head of lettuce butt down, and pull out the butt; if it is long, the lettuce is probably bitter. Cut a head in half to inspect for rust on the inner leaves and for insect damage. Store as you do cabbage, with the discarded outer leaves spread over a layer of lettuce heads in the walk-in box to prevent further wilting of outer leaves on the heads. Price varies with each size. Ask the price on all sizes before ordering.

*Bibb lettuce* was first grown in Lexington, Kentucky. This lettuce was named "Limestone" because it grows in lime and rocky soil. This lettuce has no heart; each leaf comes off the root stem separately. It should come packed only in 5 lb. or 10 lb. baskets. If Bibb lettuce wilts, its crispness can be quickly revived by putting the leaves in ice water. Rose-shaped heads of medium-size, pale green in color with small stems, are best in quality.

*Curly Endive (Chicory)* This curly-leaved salad green should have a white heart. Purchase by the bushel or the crate, but check the middle of the container for uniform quality. If the heart is green, the chicory will be bitter. Brown edges on the outer leaves also indicate bitterness. Trim down the overbrowned ends before using.

*Escarole* has a broader, straighter leaf than chicory. The same purchasing rules apply to it as do for chicory.

*Romaine* should be dark green, cone-shaped, and have long spoon-like leaves with points. If the cone is open and flabby, the romaine will have a dull, dead taste. Romaine with large butts or seed stalks in the middle should not be accepted. Romaine should be cut into very small pieces for salads as large pieces have a bitter taste. Buy romaine by the head or by the crate or basket, with the number of heads stated on the container.

## MUSHROOMS

The mushroom is the only vegetable that shuns the sun. There are two types, white and brown (cream colored). Mushrooms are graded and are also classified by size: small (under 1-inch in diameter); medium (1 to 1½ inches); large (over 1½ inches and up to 3 inches); and extra large (over 3 inches). Order mushrooms by grade and size on the day you intend to use them. Use No. 1's, half-dollar size, to dress up steaks; use the No. 2's for chopped mushrooms. The No. 1's are usually very white, have a crusty, heavy appearance, and the stem is short. The stem end should be closed and stay closed when you rub your finger over it. After 42 hours the cap "veil" (or fins that join the margins of the cap to the stem) opens and the mushroom flattens out when cooked. Oversized mushrooms have the strongest mushroom flavor.

## ONIONS

Spanish onions are easy to check. Rub the skin or shake the sack. If it rattles, the onions are good; if not, something is wrong. Onions come in sacks. If the sack is full, it has short ears. Weigh the sack; it should weigh 50 lbs. A shrinkage of 3 per cent is permitted, but if the bag weighs under 48 lbs., do not accept it. Buy No. 1 onions for sliced onions to serve on hamburgers and for french-fried onions. The No. 2's (doubles and splits) are all right for chopping. In buying, first ask the price of No. 1 onions; then ask for the price of doubles and splits. Buy for a use, not for the specification.

## GREEN PEPPER

Green pepper comes extra large, large, medium, and small. Unless you plan to serve stuffed peppers, the medium is the best buy. But specify the size; otherwise, you may be charged for large or bell peppers and get the medium. Good pepper will always be a shiny, bright green, well-shaped, firm, meaty, and dry at the stem. If the end is wet or decayed, or if you can push your thumb easily through the side, the pepper is not good.

## POTATOES

Potatoes are grown in many varieties, but so far as use is concerned, there are only three: baking, mashing, and boiling potatoes. [See the article on potatoes by Dr. Ora Smith, professor of Vegetable Crops at Cornell on pages 50-54.] Potatoes come in bags and the bags should have short ears, should not be torn, and the label should be plain. For U.S. No. 1 grade, 85 per cent of the potatoes must weigh 6 oz. or more. Utility potatoes sell for about \$1 less per bag and are suitable for mashing. In storing, allow for air circulation around and through the pile to prevent decay. In baking potatoes, be sure to prick them top and bottom after covering them with foil; they will have a better flavor and texture.

## RHUBARB

Rhubarb comes pink (hot-house grown) and red (out-door grown). Order it by size as you do asparagus—finger size or thumb size. Cut rhubarb stems with kitchen scissors; this squeezes together the cut ends and seals in the juices when rhubarb is cooked. Cut within 2 inches of the tops and don't use these tops because they are toxic.

## **RUTABAGAS (YELLOW TURNIPS)**

Rutabagas are the least understood vegetable. They are cheap, can be kept indefinitely, and can be prepared into wonderful dishes. Buy rutabagas by the pound or by the bag. They should be round, smooth-skinned, and heavy for their size. Large, coarse, over-grown rutabagas are light weight for their size and may be tough, woody, hollow, and strongly flavored. Rutabagas come coated with a thin layer of wax which helps preserve them. Store as you do potatoes.

## **DRY SHALLOTS**

Dry shallots are being used for flavoring instead of garlic but they are sometimes hard to obtain. They give dishes a wonderful lasting onion flavor that does not have the offensive qualities of garlic. Buy in small amounts and store in dry area. Dry shallots keep for many weeks.

## **TOMATOES**

Tomatoes are available at all seasons of the year, but their quality varies. During the winter, we rely upon hot house tomatoes and out-of-state tomatoes shipped in from Florida, Cuba, Mexico, California and Arizona. These out-of-state tomatoes are shipped green to a major distributing center where they are ripened to a pink or reddish color before being boxed for sale. Three to four grades are available for different types of tomatoes; 4x5; 5x6; 6x6; and 6x7. To inspect tomatoes, look for smooth-skinned, well-developed fruit without puffiness, bruises, or growth cracks around the stem end.

The hydroponic tomato now being cultivated in Florida is new on the market. These tomatoes are grown on stakes 30-feet high that are set about 8 inches apart in sand and gravel. These plants are fed water and chemical nutrients. For their size, hydroponic tomatoes are heavy and firm. They have the real, fresh, sun-ripened tomato flavor, yet the acid content is so small that they are non-allergic. Hydroponic tomatoes are shipped green in 10-lb. baskets. They get red in storage and stay so. They will not change in color when stored for as long as ten days in a walk-in refrigerator. The hydroponic tomato cuts clean and firm. When you compare it with other sliced tomatoes, you will observe that it is meaty by comparison and that the flesh does not run to seeds and water. Hydroponic tomatoes are approximately 25 per cent higher in price than other winter tomatoes.

## **ZUCCHINI**

Zucchini or Italian Squash can be easily prepared; it is "different" and non-fattening. Zucchini comes packed in 8-lb. baskets or in half-bushels. Buy them by the pound, ordering medium-size, dark green squash. Large zucchini are poor in yield and flavor. In testing for freshness, examine the stem end and pinch it; if it is firm, the zucchini is fresh. The garden-grown zucchini is larger and a darker green than the hot-house variety, and its shape is not standard.

## **GARNISHES AND RELISHES**

Watercress, parsley, radishes, and green onions are usually purchased by the bunch. Count the bunches when they are delivered to make sure the count tallies with your order. These products are shipped tied in waxed string and these ties should not have been replaced with rubber bands. If they are, the bunches have been tampered with by someone!

# The Use of Precooked Frozen Foods

Time and money can be saved when cooked foods suitable for freezing are properly wrapped, frozen, stored; thawed and reheated.

by Donald K. Tressler, Ph.D.<sup>1</sup>

Food service managers are seldom in complete agreement on the possibilities of using either precooked frozen foods or of freezing left-overs and other products in their own kitchens. One man may be enthusiastic about frozen foods and the possibilities of freezing both left overs and specialty items. Another may think that all frozen cooked foods are mediocre and states with emphasis that he will not serve such mediocre foods in his own restaurant or hotel. A third thinks that only a few are excellent and that too much specialized knowledge of the methods employed in freezing, handling, and reheating frozen foods is necessary in order to obtain products of good quality.

The reason for such divergence of opinions is that various cooked foods react so differently to freezing and reheating. With respect to freezing, cooked foods may be classified into four different categories:

1. Those which may be frozen, stored, thawed, and reheated without marked change; for example, apple sauce, winter squash, various pies, rolls, cookies, most cakes, and clear soups.

2. Those which are greatly changed by storage and reheating but, by certain modifications, either of the method of cooking or in the recipes, may be changed so as to be well-suited for freezing. Creamed chicken and turkey, poultry pies, most sauces and gravies, and creamed soups fall in this category.

3. Those precooked products which, when freshly prepared, are excellent but which deteriorate rapidly at ordinary storage temperatures and consequently have a short storage life unless they are held at unusually low temperatures (e.g. -10°F. or lower), if they are to be stored for longer than a few weeks. Turkey dishes, fatty fish, and shellfish are examples of such products.

4. Those which are greatly changed by freezing and reheating and which are difficult or impossible to improve; such as custards, cooked egg whites, and vegetable salads.

## Food Freezer Requirements

Let us assume that the restaurant operator has finally decided that it is to his advantage to make as much use as possible of frozen foods and freeze leftovers which may be saved for future use by this method of preservation and has sufficient space available to build the type of cold storage room and freezer required. Further, let us assume that the restaurant or cafeteria is of medium size and, further, has need from time to time to handle rather large luncheons, cocktail parties, and banquets.

Based on these assumptions, the kitchen should have adjoining it a freezer of good size, preferably a walk-in room with a cooler (35° to 40°F.) as an anteroom. Further, the cold storage room should

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have a freezing unit of ample size to maintain a temperature of  $-5^{\circ}\text{F}$ . in the room at all times, even during the hottest of summer weather. Moreover, freezing plates (e.g. Dole plates) should be provided in sufficient quantities to enable the operator to rapid freeze specialties, leftovers, and so forth. Actually,  $0^{\circ}\text{F}$ . is sufficiently low for the satisfactory storage of almost all frozen foods. But if the freezer is set for  $0^{\circ}\text{F}$ ., when relatively large quantities of warm foods are placed therein, the temperature will rise to plus  $5^{\circ}\text{F}$ . or even higher. This temperature is somewhat too high to be entirely satisfactory. It is therefore suggested that the room insulation and refrigerating unit be suited for maintaining a  $-5^{\circ}\text{F}$ . temperature and that this be considered the normal temperature of the room.

### Freezer Use

If the kitchen has been provided with a suitable freezer and storage described briefly above the restaurant operator should use it for the following five purposes:

- Storage of supplies of frozen foods of all kinds.
- The freezing and holding of leftovers.
- Freezing and holding of food prepared in advance for large cocktail parties, luncheons, banquets and rush days.
- For storing of commercially prepared frozen pre-cooked foods, the general use of which will mean savings in money or labor, or in improved quality of food service.
- The freezing of specialty items which cannot be obtained commercially and perhaps, also, the freezing for sale in the frozen state of certain "specialties of the house."

### Frozen Food Supplies

Now, first, what frozen foods should be normally stored for use by the restaurant? In general, frozen poultry, fish, shellfish (except lobster), peas, lima beans, and other vegetables, ice cream, ices, sherbets and ice cream novelties may all be advantageously stored in the freezer for daily use. These frozen foods, if purchased from the better class of frozen food packers, are as good or better in quality than may be obtained in the fresh or canned state.

### Leftovers

Many restaurant operators have tried the freezing of leftovers and decided that the quality of

many of these products is greatly damaged by freezing, storage and reheating. This is not necessarily the case. One difficulty is that the chef, or whoever makes the decision whether the leftovers are to be frozen or discarded, may not be sufficiently familiar with the kinds of foods which can be frozen without great change and those which are damaged or ruined by freezing.

Certain leftovers which freeze very well indeed include: soups, chowders, stews, shrimp, oysters, crabmeat, crab cakes, devilled crabs, scallops, pot pies, heavy cream, chop suey, muffins, rolls, apple sauce and other fruit sauces and pureés, pie crust, both before and after baking, many pies, almost all cakes and cookies. In addition, a few cooked vegetables, including cut corn, beets, and carrots keep exceedingly well frozen and then can be satisfactorily reheated for later use.

### Foods with Cream-Sauce Base

Gravies, cream soups, pot pies, and the like, freeze very well *when waxy maize or waxy rice flour is used for the thickening*. They should not be held in storage for longer than four weeks.

### Package Foods Properly

It must be remembered, however, that all of these foods must be *properly packaged*. Foods dry out (desiccate) and oxidize unless they are kept in covered dishes, pans, or in liquid-tight, moisture-vapor-proof packages. Proper packaging is especially important for rolls, cakes, and other baked products.

### Packaging Frozen Foods

Proper packaging is of utmost importance for all frozen foods. By *proper* is meant packages which not only prevent the desiccation (drying out) of the food but also prevent or retard oxidation by eliminating intimate contact of the frozen food with the oxygen of the air.

### Fresh Foods

Fresh foods are usually packaged in moisture-vapor-proof paperboard cartons. These are satisfactory provided they are sufficiently moisture-vapor proof to prevent desiccation. Ordinary paraffined paperboard cartons are seldom satisfactory because they are not entirely moisture-vapor

proof. On the other hand, papers and paperboards that have been laminated with moisture-vapor proof plastic films, such as Saran, polyethylene or even moisture-proof cellophane, are very good for foods which are not to be reheated in the original packages. Cartons which have moisture-proof plastic sheeting liners, such as Saran, polyethylene, or moisture-proof cellophane, are also suitable for fresh foods.



Courtesy of Elco-Alcoa Containers Inc.

#### RIGID ALUMINUM FOIL CONTAINERS

*These containers are designed for freezing, storing, and selling many types of precooked frozen foods. They offer exceptional ease of filling, packaging, stacking, and case packing for the packer, distributor, and retailer. The food service operator as well as the housewife can reheat and serve in the same container.*

#### Precooked Foods

For precooked frozen foods, aluminum foil (either rigid or flexible) packages are much to be preferred since not only are these containers completely moisture-vapor proof and do not permit the passage of oxygen of the air, but they may also be used for reheating of the prepared foods.

Usually paperboard cartons are not wholly satisfactory for products which are to be reheated either on top of the range or in an oven since the paperboard may be scorched and give an undesirable flavor to the food. Even if the precooked food is not to be reheated in an oven, the aluminum foil provides needed protection during the thawing since any water that condenses on the surface of the product during thawing will not come in contact with the frozen product. This is especially important in the thawing of canapes, hors d'oeuvres, sandwiches, and for that matter all baked goods.

#### Freezing Food For Parties

Almost all canapes, hors d'oeuvres, cookies, fancy cakes, confections and candies, can, if properly packaged, be frozen and stored for several weeks and then reheated for use on the day of the party without noticeable change because of the freezing and thawing operations. Since a great deal of time is required to prepare canapes, hors d'oeuvres and fancy cakes, a freezer can be a great help in handling large parties.

Further, if the restaurant has limited baking facilities and if the chef prefers to bake his own pies, cakes, rolls and other similar products, there is no reason why he cannot bake these goods during slack times and hold them for later use.

#### Commercially Prepared Foods

Certain prepared and precooked foods, available commercially, are of great advantage to the restaurant operator. One example is the *parfried* potatoes. Parfried potatoes are those which have been prepared for frying in deep fat and then fried in deep fat to a very light color. These potatoes, when partially thawed and the frying completed in the usual hot fry bath, result in a first-quality french fried potato.

One advantage of this procedure is that the parfried potatoes are prepared by the frozen food packer from the best quality of potato at exactly the right stage of maturity. Moreover, since factory equipment is used by the frozen food packer for their preparation, the labor cost is low. Further, the frozen food packer can use the odd-sized strips and crushed pieces for other purposes. Consequently, he can sell parfried potatoes at a moderate price to the restaurant operator.

The restaurant operator gains by a saving in his labor costs and he also benefits by having a superior product since the strips do not have to be prepared hours ahead and then held until dinner time. He gains further through obtaining a much greater yield from a given weight of potatoes. Finally, the kitchen is not smoked up with smoke and steam from the fry bath.

Other examples of commercially frozen pre-cooked foods that can be advantageously used by the restaurant operator are breaded shrimp, both raw and precooked shrimp, fish sticks, and cakes and cake batter.

### Restaurant Specialties

Some restaurants may want to freeze their specialties for sale either over the counter or through other outlets. This is profitable only when a restaurant has a great reputation for certain specialties.

There are a few frozen items which cannot be obtained commercially which can be frozen to advantage by the restaurant operator and served or used during the off-season. An example of this is corn on the cob. Certain varieties (*e.g.* Barbe-

que sweet corn) freeze almost perfectly. Commercially the frozen food packer hesitates to freeze corn on the cob because of the bulk and because of the difficulty in obtaining the product at exactly the right stage of maturity.

### Thawing and Reheating

There is no exact rule of thumb to be followed in thawing and reheating all kinds of frozen foods. In general, it can be said that the product should be allowed to stand out for a matter of thirty minutes to one hour in order to begin the thawing. Then it can be placed in a hot oven to complete the thawing and reheating. Or, if a product is to be served at room temperature, an ordinary fan can be directed to blow over the product. This will thaw it in a fraction of the time required if the fan is not used.

One point to be remembered is that moisture is likely to condense on the frozen product during thawing. For this reason, if the product is not packaged in moisture-vapor-proof packages, it should be wrapped in foil or otherwise protected from direct contact with the air.

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## COOKING VEGETABLES TO PRESERVE NUTRIENTS

Hotels and restaurants now seek to serve food to the public that is nutritious as well as tasty and attractive. Dr. Robert S. Harris, professor of institutional chemistry at M.I.T., recently told the student body of the School of Hotel Administration at Cornell University. Institutions with trained dieticians, such as hospitals, schools, and the armed services, have addressed themselves to nutrition problems for many years. Diners-out, he said, are more diet-conscious and nutrition-conscious today than were their parents. Newspapers, "shelter" magazines, and school courses have made people aware of the vitamin and calorie count of foods.

When food is served to large numbers of persons, Dr Harris said that especial care should be taken to preserve valuable vitamins and nutrients. Cooking vegetables in large quantities far in advance of serving and then keeping them hot over the steam table causes them to lose nearly all of their Vitamin C and Vitamin B, especially thiamine, riboflavin, and niacin. Animals fed silage fare better than some humans, so far as the vitamin content of their food.

Fresh vegetables held in storage for several days can lose, through dehydration, as much as 30 to 40 per cent of their nutrients. Peeling and slicing vegetables with metal knives and then soaking them in copper utensils causes vitamin losses before cooking. When vegetables are boiled in a liberal supply of water or steamed at high pressures, half the remaining nutrients leach out. Keeping them warm for an hour or two over the steam table reduces the vitamin content to the merest fraction. The addition of salt while cooking or of soda to brighten the color is also harmful.

Many restaurant kitchens now prepare and cook vegetables in continuous small batches, rather than in large quantities at one cooking, especially when the serving time is stretched out one or more hours. To preserve vitamin content, vegetables are purchased and prepared while garden-fresh. Then they are cooked in small batches with just enough water to keep them from scorching (or steamed at recommended pressures) for immediate serving. This small-batch method avoids left-over vegetables, which contain little nourishment.

# *The Temperamental Potato*

## How to Select It and Improve It for Serving

by *Ora Smith, Ph.D.*<sup>1</sup>

Day in, day out, all through the year, more potatoes are served than any other vegetable. Last year hotels and restaurants served 65 million bushels of potatoes. These establishments also served about 65 million meals each day. This means that persons dining away from home last year each ate, on the average, about 60 pounds or one bushel of potatoes. On the home dinner table, the potato is an even more popular vegetable. The annual average consumption of potatoes is now 106 pounds per person in the United States, or the equivalent of all the other fresh vegetables consumed.

Potatoes, which are grown in every state in the Union, are available year around, easily stored, and can be served in hundreds of ways. Most important, potatoes are cheap — ranging from 2½ to 5 cents per pound — and a pound is sufficient to serve several people.

### Not Fattening

Contrary to popular misconception, potatoes are not fattening. One medium-size potato contains only 100 calories, or the calorie equivalent of one medium-size apple, one medium to large orange,

or half of a medium-size grapefruit. And who thinks of these fruits as being fattening? Some people shun potatoes when they are dieting and unwittingly substitute foods with much higher calorie content.

Since one pound of boiled potatoes contains only 373 calories, the average, active person could eat 25 to 30 medium-size potatoes (7–9 pounds) daily and merely maintain his present weight if he had no other food. An all-potato diet would be dull, but not fattening. It has been demonstrated that potatoes, because of their bulk and high moisture content, fit well into reducing diets. These facts are being widely disseminated. For this reason, hotels and restaurants can expect little diminution in the popularity of potatoes among their patrons. Through better selection and handling, these establishments can offer potatoes that, when cooked, are more attractive in appearance, better in texture, and more flavorful.

### A Mishandled Vegetable

For all its popularity, the potato is still misunderstood and mishandled by many users. Potatoes vary greatly in texture, color, flavor, and other characteristics. In cooking, considerable dissimilarity is found among potato varieties. Moreover, the same variety differs somewhat when it is grown in different regions and under varying conditions. Variations are found between tubers on the same plant, and, indeed, variations are even

<sup>1</sup> Dr. Smith is Professor of Vegetable Crops in the New York State College of Agriculture at Cornell University. This article is based on an address he gave before the Sixth Annual Workshop on Hotel Management held at Cornell University, January 25 to 29, 1960.



found within the same tuber. Finally, the diverse methods using in growing, storing, grading, packing, transporting, and cooking potatoes further adds to this inconsistency. In brief, there is no such thing as an "all purpose" potato. Thus, large scale users find it advantageous to learn all they can about potato varieties in order to make the proper selection for the uses they plan to make of potatoes.

## Potato Varieties

Over 70 varieties are commercially grown in the United States. Institutional buyers need be familiar with only the following four groups:

1. *Long Whites.* This group consists almost entirely of the White Rose variety grown in Kern County Area, California, and which is marketed during May, June, and July. You seldom see them on the market at other times.
2. *Round Whites.* Most of the white skin varieties on the market are in this class. Early white skin varieties include Irish Cobbler and Chippewa; the late varieties are Katahdin and Sebago. Almost half of the potatoes grown in the Northeast are Katahdins. During the fall, winter, and early spring months, your produce dealer is most likely to have Katahdins. Early white skin potatoes coming from Florida and Alabama are Sebagos.
3. *Reds.* Red skin varieties are largely Red Pontiac, grown as "new" or "early" potatoes in the south and also as "late" potatoes in the Red River Valley and other northern areas. These potatoes usually have a low specific gravity and are best for boiling rather than for baking or french fries. Some are dyed red before being marketed.
4. *Russets.* Most russet skin potatoes on the market are Russet Burbank, often called "Idaho Baker." Grown principally in Idaho and other northwestern states, considerable acreage has also been planted recently to this variety in Maine, Wisconsin, Minnesota, Colorado, and California. This potato has a high specific gravity, is mealy, and therefore, excellent for baking or for French fries when properly handled. Some restaurants use only this variety for baking, although this is not necessary.

## When Buying Potatoes

Most potatoes are packed according to United States grades. These grades standardize potatoes, taking into account variations in size, shape, condition, defects, and quality of the *raw* potatoes.

Grading provides a common basis for both the seller and the buyer, enabling each to understand exactly what is offered for sale. But grading does not take into account factors that influence *cooking* quality, which is most important to institutional buyers. Most potatoes now marketed are either brushed or washed first and some red potatoes are even waxed and dyed red.

The U.S. No. 1 Grade automatically specifies that the *minimum size* of potato in that grade is 1½ inches in diameter. This minimum-size category also includes potatoes larger than this diameter; when so packed, it is stated on the container. Maximum size, unless otherwise marked, is 4-inch diameter. The U.S. Commercial Grade allows for more defects and more off-grade potatoes than does the U.S. No. 1. The U.S. No. 2 grade permits an even higher percentage of off-grade potatoes than any of the other grades mentioned and the minimum size set is only 1½ inches diameter. Containers are marked with the area in which the potatoes are grown or packed, the net weight of the package, and also the U.S. grade. Sometimes the size minimum, the shape, and the skin color are also given.

## "New" vs. "Old" Potatoes

"New" potatoes are available in winter, spring, and early summer. These potatoes are harvested while still immature from January to July in areas ranging from Alabama and Florida up the East Coast as far as New Jersey and Long Island, and also in California. The skins of "new" potatoes are thin, easily broken, and likely to "feather" in handling. These skinned areas often turn brown in the raw potato. These potatoes are high in moisture content, their specific gravity is low, and, when cooked, the texture is waxy instead of mealy. Boiled whole, "new" potatoes do not slough or fall apart, nor are they likely to turn dark after boiling. But they do not make good "bakers." Store "new" potatoes for not more than a week or ten days.

The late potato crop, grown in the northern states, is largely placed in storage for winter and spring usage. These potatoes are mature when harvested, store well, and have thicker, tougher skins than the early crop. Their specific gravity is higher (less watery), they are more mealy in texture and therefore better for baking, mashing, and french fries than are "new" potatoes. Late crop, stored potatoes are a much better all-around buy than are freshly harvested, early potatoes.

## HOW TO STORE POTATOES

**Store potatoes that have been especially treated for sprouting in dark rooms having a temperature of about 50°F., with a relative humidity of 85 to 95 per cent. Keep air circulating to prevent cold and hot spots in the potato stack.**

**When potatoes are stored below 30°F, they shrivel. If stored at temperatures ranging from 32 to 40°F. they accumulate sugar and darken when french fried. Potatoes kept at these temperatures should be held at room temperature for a week or ten days before using.**

### Potato Storage

Potatoes of high quality when harvested can lose quality before consumption if storage conditions are not favorable. Potatoes freeze at temperatures lower than 29 to 30°F., rendering them practically worthless. When thawed, frozen potatoes soften up, lose water rapidly, and begin to shrivel.

Potatoes stored below 50°F. accumulate sugar and for this reason make dark french fries. This is especially true when the storage temperature ranges between 32 to 40°F. for long. When stored for several months above 40°F., on the other hand, sprouting, shriveling, and rapid moisture loss occur. To prevent sprouting under these conditions, potatoes are treated with a sprout inhibitor either in the field or when first placed in storage. This treatment enables the grower or handler to hold potatoes at 50°F., at which point sugar accumulation is inconsequential, making them good for use as french fries and potato chips.

To prevent potatoes from shriveling and losing moisture in storage, the air should have a relative humidity of 85 to 95 per cent. Keep the air circulating to avoid cold or hot spots in the potato stacks. Potatoes should be stored in the dark because exposing them to light results in greening of the potatoes' skin and outer flesh, accompanied by accumulation of a bitter-tasting substance called "solanine."

## Cooking Quality

Institutional purchasers are principally interested in potato quality when served; in other words, "How they eat." It is impossible to predict the cooking quality of potatoes from external appearance. For the potato, "Beauty is only skin deep" and the stringent grading, brushing, washing, waxing and dyeing processes performed by growers and marketers dress up only that portion of the potato going into garbage.

Three factors govern potato quality when it is cooked: *texture*, *color* and *flavor*. There are tests, many of them perfected at Cornell University, that help to determine these three qualities *in advance* of cooking.

### Potato Texture

So far as texture is concerned, potatoes can be separated into two general categories — mealy and waxy. Mealy potatoes are best for baking, french fries, and mashing. Waxy potatoes are best for boiling. In every lot purchased, some potatoes will be mealy (have a high specific gravity or dry content) and some will be waxy (have a low specific gravity and a high moisture content).

**Tests for Specific Gravity.** The specific gravity of potatoes can readily be ascertained in advance of cooking. Half a barrel, a wire basket, salt, and water are all the equipment needed. Here is the procedure which we have followed successfully for many years to separate potatoes according to their specific gravity. In the half barrel, make up a salt-water solution of 1.080 specific gravity (one pound of salt to each gallon of water). Then lower the potatoes, about a dozen at a time, into the half barrel. The potatoes with a low specific gravity will float near the top of the barrel; those of high specific gravity will settle near the bottom. Using the wire container, fish out the potatoes near the top that have a low specific gravity and put them into one pile for boiling; then remove those near the bottom which have a high specific gravity and put them into the pile for baking, french fries and mashing. Repeat this process until all the potatoes needed have been sorted.

An even easier method, and one more suitable for institutional kitchens, involves the use of a Potato Hydrometer<sup>1</sup> to determine the specific

<sup>1</sup> Made and sold only by the National Potato Chip Institute, 946 Hanna Building, Cleveland 15, Ohio.

gravity of potatoes. This hydrometer is a tube-like piece of equipment with a bulb at the lower end which was perfected after ten years of research at Cornell University. To use this Potato Hydrometer, weigh eight pounds of potatoes on a scale, place them in the basket to which the hydrometer is attached, and then lower the basket and hydrometer into the water tank. The specific gravity of the potatoes is indicated on a scale at the water level of the hydrometer tube.

### Potato Color

There are three principal types of discoloration in potatoes:

1. Raw peeled potatoes, whole or french fry cut, will discolor to a brown or black soon after peeling and cutting if no steps are taken to prevent it. Some potatoes darken more than others do. This darkening is due to enzymatic reaction when the raw potato is exposed to the oxygen in air. Cooking prevents this reaction. This darkening can be prevented during the period before cooking by holding the peeled potatoes in water, which excludes air from the potatoes. A better method is to dip the whole or cut potatoes for one minute into a solution of one pound sodium bisulfite ( $\text{NaHSO}_3$ ) in eight gallons of water. Potatoes, after being dipped in this solution, can be kept in storage at 40°F. for a week or longer.
2. After-cooking darkening often occurs, primarily at the stem ends of potatoes, within a few minutes after removal from the steamer or the boiling water. This darkening may also appear on the stem ends of potatoes cut for french fries when they are par-fried, but this darkening is usually not noticeable when the potatoes are completely fried for serving.

After-cooking darkening in boiled potatoes can be prevented by adding one-half teaspoon of sodium acid pyrophosphate food grade ( $\text{Na}_2\text{H}_2\text{P}_2\text{O}_7$ ) to each quart of water in which they are to be boiled. This chemical is approved for food use by the Federal Food and Drug Administration. Other additives, such as lemon juice and vinegar, are not nearly so satisfactory for this purpose because they impart an acid taste and also result in a less mealy potato. Potatoes grown in muck soils are less likely to discolor after boiling than those grown in mineral soils in the same area.

3. French fry color or potato chip color results from the chemical reaction between sugars and amino acids in the potato during deep fat frying. A golden brown color is desirable, but if the sugar content of the raw potatoes is too high, the chips and french fries will fry to a dark brown. Flavor as well as color is developed in frying and both are essential for an attractive product. Some

potato varieties are always high in sugars and therefore make dark french fries. But most dark french fries result from storing potatoes at temperatures below 50°F. and then using them too soon. Potatoes so stored should be kept at room temperature for a week or two to dispense with excess sugar. A lighter color can be obtained for french fries if you will place the raw cuts for one minute in a solution of one ounce sodium bisulfite to three gallons of water maintained at 180°F. to 200°F. before frying them.

### Color Tests

Two quick, easy methods have been developed for determining the french fry color of potatoes without bothering to peel, cut, and cook them.

The first method involves the use of a *picric acid reducing sugar kit*.<sup>1</sup> A core sample of the potatoes to be cooked is tested in a tube of solution by heating it and then comparing the color of the test-tube solution with a color chart provided by the manufacturer of the kit. Potatoes that will be golden brown when fried are predicted by a yellow color for the solution in the test tube. The darker the solution, the darker the potatoes sampled will be when fried.

The second method, which has been perfected recently, involves the use of a chemically prepared ribbon, known as a *Chip Color Tester*<sup>2</sup> which comes in a roll dispenser. To use this test, select five unpeeled potatoes, chosen at random from the lot of potatoes to be used, and cut them in half lengthwise from stem to eye end. Withdraw enough Tester Ribbon from the dispenser to extend the entire length of the cut potato, apply to the full length of one of the potato halves and then press the two halves together again. Wait for one minute. Then remove the ribbon and compare it with the color chart on the side of the dispenser. The darker the ribbon color, the darker the potatoes will be when they are fried. Portions of the potato coming in contact with the Tester Ribbon must be discarded.

### Potato Flavor

The bland flavor of the potato makes it a food of which we seldom become tired, even when potatoes are eaten once or twice daily. The flavor seems best shortly after the potatoes are harvested. The longer they are stored, the more off-flavors or strong flavors become noticeable. A "sweetish"

<sup>1, 2</sup> Both color tests may be purchased only from the National Potato Chip Institute, 946 Hanna Building, Cleveland 15, Ohio.

taste is detectable in potatoes stored at low temperature and then cooked before being kept at room temperature long enough to dispense with excess sugars.

### Processed Potatoes

In 1959, about 30 per cent of the potatoes consumed in the United States were processed, or around 95 million bushels. The trend is rapidly upward. Potato chips, popular in restaurants as well as in the home, comprise about half of this total. The popular new "chip dips" and the new processes for crinkle, waffle, or wavy-cut potato chips to match certain dips has caused consumption to soar. Chips are now available with cheese and barbecue flavors, among others, that have served to increase their popularity. Potato chips are served with sandwiches, with salads, with

breakfast eggs, with appetizers, and in scores of other dishes, not to mention being eaten alone as a snack item.

Dehydrated potatoes are gaining in popularity. Last year 20 million bushels of potatoes were dehydrated. Most of them were dehydrated in granules, but the flake form is winning wider acceptance. Processed potatoes are also available in shreds, diced, frozen mashed, and in many other forms.

### Conclusion

The readiness and ease with which potatoes can be obtained, stored, and cooked, and the hundreds of ways in which they can be served assure the continued popularity of the potato in the American diet. Proper selection and handling are required to produce the best cooked potato.

### URGE PROBLEM DRINKERS TO EAT

Restaurateurs and other food service operators wanting to curb problem drinkers in their operations should urge them to eat, according to Dr. Harrison M. Trice, who recently addressed a Club Managers' Short Course at Cornell University. Food, such as steak, salads with oil dressing, and butter, slow down the stomach's absorption of alcohol. Dr. Trice, a faculty member of the New York State School of Industrial and Labor Relations at Cornell, serves as an industrial consultant on alcoholism.

On an empty stomach, an 180-pound man can become legally intoxicated (0.15 per cent alcohol in his bloodstream) when he quickly drinks two or three straight shots of 80-proof alcohol. After eating a good dinner, five such drinks are needed to show the same amount of alcohol in his bloodstream.

Cutting off alcohol served to problem drinkers at the bar would be helpful, Dr. Trice said, but most of them will simply seek out another bartender with fewer scruples. Food not only cuts down on the amount of alcohol taken into the bloodstream, but also provides heavy drinkers with protective foods. The problem drinker tends to substitute alcohol for food, thus starving his body of vitamins and body-building nutrients.

Dr. Trice outlined the popularly accepted explanations for problem drinking — heredity, metabolism, emotional instability, and group in-

fluences—pointing out that none of them are separately provable.

Many urban business executives go through the entire process of becoming an alcoholic without observation, Dr. Trice commented. Among their associates, their drinking is controlled and they avoid alcohol as a conversational topic. They tend to drink alone or to find companions who are also heavy drinkers and then drink themselves into a stupor.<sup>1</sup>

The pre-dinner cocktail and social gatherings at which alcohol is served have become an accepted part of American life, Dr. Trice said. At such affairs, alcohol functions as an "ice breaker" and its use is group-oriented. Problems arise when persons consume alcohol for other than social reasons, particularly as a means of managing their maladjustments.

Our social mores and attitudes toward drinking need considerable alteration before Dr. Trice sees much hope in combatting alcoholism. Only one person out of seven taking treatment remains sober for as long as two or three years after therapy. People should recognize that the ability to "hold one's liquor" and to "drink others under the table" is a danger signal—the first stage in alcoholism—not a prestige factor. Some persons stabilize their drinking at this point. Others unfortunately progress to memory blackouts, uncontrolled drinking, and to eventual physical and mental collapse.

<sup>1</sup> "The Alcoholic Business Executive" (*Fortune*, Vol. LXI, No. 1, January 1960, pp. 99-101) reports on several case studies made by Dr. Trice.



# Recipe Standardization

Standardize recipes to eliminate the guesswork and maintain better quality, portion, and cost controls.

by Professor Myrtle H. Ericson<sup>1</sup>

Standardized recipes and portion control have been much discussed by accountants, food production managers, chefs, and supervisors. Among some, there is not a clear understanding of exactly what is meant by a "standardized" recipe. A "standardized recipe" means more than simply a "well-written" recipe. *Standardized recipes are recipes revised to be practical for a particular operation.*

In food production, standardized recipes are an important tool that can be adapted to every type of feeding operation in order to maintain quality and cost control. A standardized recipe is based on the portion size and yield requirements of the individual operation, and it is especially adapted to the operator's equipment and purchasing procedure.

## Aids Portion Control

Recipe standardization is the major element of portion control or portion planning. *Portion control is giving a definite quantity of good food for*

<sup>1</sup> Professor Ericson has been a member of the faculty of the School of Hotel Administration at Cornell for sixteen years. In preparing this article, she was assisted by Robert D. Hansen, assistant staff housing manager, Northwest Airlines, Inc., Shemya, Aleutian Islands, U.S.A.



Professors J. J. Wanderstock and Myrtle Ericson conduct a seminar on research in the Herndon Room of the Statler Library. The School's library, the most extensive of its kind anywhere, numbers about 9,000 volumes on hotel and restaurant operation and related subjects.

a definite percentage of profit. When applied to the food service industry in its entirety, it provides planning skills comparable to controls that other industries have been using for a long time. Better planning skills have been long overdue in the food industry.

Increased food and labor costs are forcing the volume feeding industry to use portion planning. Because of the work involved in standardizing recipes to achieve portion planning, some busy food operators become discouraged at the outset.

It is a big job. The person executing the transition from ordinary recipes to standardized, portion-planning recipes must be well qualified, must have high food standards, and, moreover, must have the complete cooperation of the entire staff. Yet, the advantages that can be achieved in planning, production, and especially in cost controls have proved that standardized recipes are worth the effort required to develop them.

## Advantages of Standardized Recipes

Standardized recipes are advantageous to food operators because they

1. Save time for both cook and manager, allowing more time and money for skill in preparing, serving, and merchandising of food.

2. Eliminate guesswork and waste due to poor estimating of quantities and failures in cooking.
3. Eliminate variation in quality and quantity of the product, making frequent sampling and "doctoring" unnecessary.
4. Prevent being dependent upon anyone cook or chef.
5. Assist in portion control and food-cost control by providing a means of
  - figuring accurate cost of the food used.
  - estimating yield to be expected.
  - checking losses and making necessary adjustments by use of fewer or cheaper materials.
  - maintaining quality and preventing leftovers.

### Factors Involved in Standardization

To achieve standardized recipes and quality products consistently, (the end result of recipe standardization) the following points need to be considered:



*Student chefs serve food they have planned and prepared for a buffet at the Statler Club.*

### 1. Skill of the worker

- a. Good work habits result in efficient service, better relations and superior products.
- b. Orient top management and train supervisors first since training is the key to better work habits and necessary at all levels.
- c. Supervision in the transition to portion-control must do a *show and tell* a job. This can only be accomplished by on-the-job training.
- d. Preparation of a training manual may be necessary. This depends on the size of the operation.

### 2. Menu Planning

- a. To plan a menu adequately, it is important to analyze the clientele.
  1. Restaurant, hotel, industrial feeding, schools, etc.
  2. Section of the country, nationality and income.
- b. The menu affects the number of people employed.
- c. The kitchen equipment and kitchen layout including service area affects the menu.
- d. The menu affects the way the food is prepared and the size of the portion served.

### 3. Purchasing and inventory procedure

- a. Planning through recipe standardization permits purchasing all foods by the portion. Example: recipe set up for a No. 10, No. 5 can, etc.
- b. Whenever possible, store food by the portion and issue food by the portion, according to the recipe or requisition. This permits coordination of purchasing with a portion-planned inventory.
- c. A portion planned inventory system will keep the operator informed of portions on hand at all times.
- d. Set-up purchasing specifications.
- e. Insure adequate receiving controls, weighing and checking.

### 4. Storage facilities

A storeroom planned for control should have:

- a. Food stored with tags or crayon marked information visible for easy inventory. All perishable items should be marked and stored in "first in-first out" basis.
- b. Shelves and cabinets designed to hold food in the standard units in which it is purchased.
- c. Food stored by type. Canned vegetables in one section—Canned fruits in another section.
- d. All food checked out by requisition, and the storeroom *must* be locked at all times.

## 5. Recipes may be obtained from the following sources:

- a. Small quantity recipes which will need to be tested and enlarged (first to 25 servings) which are adapted to each place of business.
- b. Quantity recipe books and trade magazines.
- c. Recipes sent out by firms which have test kitchens set-up to perfect recipes using their products.
- d. State and National Restaurant Association.
- e. State and Federal Institutions.
- f. Prepared mixes.

## 6. Equipment needed for standardization

- a. Available equipment
  1. Techniques and equipment should be available for weighing.
  2. Pan sizes purchased in relation to yields. Example: 9 or 10 inch pie tins—yield, 8 servings.
  3. Methods and techniques for mixing.
  4. Serving equipment such as ladles and scoops.
- b. New equipment
  1. How much business dictates the amount and size of portioning equipment needed. Low volume operations may get by with simple, inexpensive devices while larger volume business will need more elaborate and perhaps more costly equipment.
  2. The following formula is a helpful guide in determining the advisability of adding new equipment.

If: <sup>1</sup> A=Actual savings in labor during the life of the equipment.  
B=Cost of equipment installed.  
C=Operating and maintenance costs during life of the equipment.  
D=Interest on investments.

$$\text{Then: } \frac{A}{B \ C \ D} = E$$

If E is 1.1 or more, the equipment should more than pay for itself. If it is 1.5 or more—the equipment is a must.

## Procedure for Enlarging Recipes

1. "Factor" method.
2. Percentage method.

*For further information, see the references at the end of this article.*

## Procedure for Testing a Quantity Recipe

1. Select a basic recipe from a reliable source. Evaluate it as to proportions, methods, yield and cost to be sure the recipe is practical and adaptable to your operation.

<sup>1</sup> Dr. Pearl Aldrich, Head, Food Service Laboratory, Michigan State University

2. Decide on any modifications necessary or desirable to make the recipe more suitable to your unit or to reduce cost.
3. Have a skilled worker make a recipe for 25 and judge the finished product. Make several tests if necessary.
4. If satisfactory, convert it to the desired yield for your establishment.
5. Make the larger quantity and judge the quality of the finished product by using a standard rating scale and a carefully selected judging-panel.
6. Have the departments test the recipe and report results. If the results are satisfactory, incorporate it in your file.

## Setting Up a Recipe File

1. A card index or loose-leaf notebook may be used.
2. If cards are used, use a card no smaller than 3 x 5, 4 x 6, or 5 x 8. The larger size is recommended. Leave sufficient blank space so printing stands out clearly. Use heavy lines to separate groups of ingredients to be handled or added together, light lines to separate ingredients for each other to facilitate reading amounts for each ingredient without error.
3. Cards should be protected by a cellophane jacket.
4. It is advisable to have a master file in the office containing all the recipes. Duplicate copies of the recipes used in that unit should be on file in the different departments in the kitchen. Any changes made in the recipe should be made on all sets. In addition to the master file, the office should have a copy of each recipe on which cost information can be recorded instead of the method of preparation. This can be set up to show percent food cost in addition to cost per serving, if that information is desired. Check for seasonal changes in cost which might affect the selling price.

## Procedure for Writing a Recipe

Include all information useful in preparing and serving the food, such as:

1. Name of product.
2. Classification (Example: Entree, Fish).
3. Yield (number of servings).
4. Portion serving size (Weight and measure).

5. Total batch weight or volume.
6. Pan size. When necessary for clarity, include depth of pan.
7. Give the temperature and time for oven baking at the heading of the recipe as well as at the end of the recipe.
8. List the ingredients in order of use. Use no abbreviations.
9. Quantity of ingredients
  - a. Weights are more accurate than measures except for quantities of less than one ounce.
  - b. Edible Portions (E.P.) weights rather than as Purchased (A.P.) weights unless both are included.
  - c. Weight or volume expressed in largest unit possible.  
*Example: 1 pound 8 ounces instead of 24 ounces*  
*1 gallon 2 quarts instead of 6 quarts*
10. Put descriptive terms such as "shredded," "cut," "sifted," or "chopped" before the ingredient if the process is to be carried out before measuring; and after the ingredient if the process is carried out after measuring.
11. When necessary for clarity, specify the type and /or brand name of ingredients to be used, "Kraft's Blue Cheese," "tartrate baking powder," "heavy cream," etc.
12. Use applicable terminology as cream, fold, blend, season, scald. Avoid long descriptive phrases.
13. Do not abbreviate except when necessary to save space.
14. Give amounts of ingredients in the easiest measurements, as  $\frac{1}{4}$  cup instead of 4 tablespoons; but not  $\frac{1}{5}$  or  $\frac{1}{8}$  cup.
15. For baking powders, specify type and amount or give one amount which is satisfactory with any type of baking powder.
16. Start and end the entire recipe on one side of a page or card. Variations may be put on the back of the card.
17. In the directions:
  - a. Use complete sentences. Make reference to all of the ingredients, indicating how and when they are to be incorporated. Use word pictures such as "chill until syrupy" or "beat until foamy."
  - b. It is not necessary to repeat the quantity of the ingredients in the method for combining the recipe.
  - c. Directions for handling materials and special precautions.
  - d. Mixing speed and length of mixing (approximately).
  - e. Scaling weight or measure.
  - f. Cooking equipment to be used and pan preparation (greasing, flouring, etc.).
  - g. Repeat the temperature and time of baking in the body of the recipe. Try to give both general and specific tests and temperatures. For example: Bake in 350°F. (moderate) oven.
18. Directions for serving:
  - a. Garnishes and accompaniments.
  - b. Serving equipment, size and kind, ladle or ounces.

#### REFERENCES

- Blair, Eulalia, "How to Write Cost Controls into Your Recipes," *Institutional Feeding and Housing*, January 1959, pp. 42-47.
- Callahan, James F., "New Method of Calculating Yield of Recipes," *Journal of the American Dietetic Association*, January 1959, pp. 45-47.
- , "Recipe Expansion Made Easy," *Institutions*, February 1960, pp. 10, 116-118.
- Jesse Cline, "Why Standard Recipes," *National Restaurant Association News*, August 1958, pp. 5-6.
- Keister, Douglas C., *How to Increase Profits with Portion Control*. New York: Ahrens Publishing Co., Inc., 1957.
- Wenzel, George, *Portion Control and Food Cost Manual*. New York: Paper Cup and Container Institute, Inc., 1790 Broadway. \$1.00

### Good Cheese Cake Needs the Right Cheese

Most cheese cakes are made with cream cheese (*cold pack cheese*) and the brands vary in acidity and moisture. When a famous restaurant gives you its recipe for cheese cake, make sure that you also get the name of the brand of cheese they use if you expect good results.

—Professor Myrtle Ericson, *Cornell University*



## An Example of a Standardized Recipe

This recipe for ham loaf is standardized for use in the student cafeteria which is operated as a food outlet for quantity cooking in the School of Hotel Administration at Cornell. Ingredients, procedures, baking pans, temperature, and serving portions are all specified to yield the quantity desired.

Entree — Meats			
HAM LOAF			
Yield: 48 servings			
Pan: 6 loaf pans 9¼ x 5 x 2¼"			
Servings per pan: 8 / 5-ounce servings or 48 servings			
Scale: 3 pounds 2 ounces per pan			
Temperature: 350°F. Time: 1¼ to 1½ hours			
Ingredients	Weights	Measure	Method
Smoked ham, ground	6 pounds		<ol style="list-style-type: none"> <li>1. Combine all ingredients. Scale 3 pounds 2 ounces per pan.</li> <li>2. Bake at 350°F (moderate oven 1¼ to 1½ hours.</li> <li>3. Cut each loaf into eight 5 ounce servings or a total of 48 servings for six pans.</li> <li>4. Serve with mustard sauce.</li> </ol>
Fresh pork, ground	6 pounds		
Milk		4¼ cups	
Tomato soup (46 oz. can: 5¾ cups)	2 pounds	3¾ cups	
Bread crumbs, dry	1 pound 5 ounces	6 cups	
Eggs, whole	1 pound 2-3 ounces	12	
Onion, minced	9 ounces	3 medium	
Total weight	19 pounds		

### Cost-control sheet for the standardized recipe for ham loaf.

HAM LOAF				
Yield: 48 servings				
Size of serving: 5 ounces				
Temperature: 350°F. Time: 1¼ to 1½ hours				
Ingredients	Amount of Ingredients		Cost per Unit	Cost
	Weights	Measure or Count		
Smoked ham, ground	6 pounds		\$0 60 pound	\$3 60
Fresh pork, ground	6 pounds		60 pound	3 60
Milk		4¼ cups	19 quart	22
Tomato soup	2 pounds	3¾ cups	47 46 ounce can (5¾ C)	32
Bread crumbs, dry	1 pound 5 ounces	6 cups	16 pound	22
Eggs, whole	1 pound 2-3 ounces	12	47 dozen	47
Onion, minced	9 ounces	3 medium	06 pound	04
TOTAL COST				\$8 47
COST PER SERVING				\$0 176



# Fats, Facts, *and* Figures

Select the fat that is especially tailored for the cooking purpose and handle it carefully for the best results.

by Laura Lee W. Smith, Ph.D.<sup>1</sup>

## Fats as Food

Fats are currently being portrayed as the "oily" villain in the American diet. They are being held responsible for cholesterol in the arteries of the middle-aged and for acne on the faces of teenagers. Not only is the public "fat conscious," but so are purveyors of foods, hotelmen and restaurateurs, dieticians, and the medical profession. In these days of rising prices, food service operators must also be cost conscious. Better use of fats can help them save money and serve tastier food. It is therefore important that institutions serving the public be informed about fats, their proper care and use, and their food value.

## Essential Fats

Nutritionists point out that some fats, particularly the saturated (solid) fats of animal derivation, are dangerous when consumed in excess. At the same time, they underscore the fact that the well-balanced diet for people in normal health should include some foods with fat content. Nutritionists single out for approval the unsaturated (liquid) fats containing linoleic and linolenic acids.

All fats are 92 to 98 per cent digestible and they

serve as carriers of the necessary vitamins A, D, and E. Fats help spare certain other water soluble vitamins as well as proteins needed for growth and cell repair. All fats contain varying quantities of such essential fatty acids as linoleic, linolenic, and arachidonic. They also supply phospholipids in the diet. Lecithin, a phospholipid, is a fatty, phosphorous-containing compound normally present in animal tissue which some physicians recommend for cutting down fatty deposits in the arteries.

## Sources for Fats

Fats or shortenings (the latter term covers a multitude of mixtures) are the result of many advances in chemical techniques. Manufacturers can now produce shortenings for any purpose and to almost any specification. These shortenings may be made from animal fats (lard and edible tallow), from vegetable fats and oils (soybean, corn, cottonseed, palm, coconut), or from mixtures of them.

## Fats Are Tailored to Uses

From the above sources fats can be tailored, through chemical processes, for such special uses as pastries, cakes, yeast goods, coatings, frozen foods, salad dressings, whipped toppings, cookies, crackers, and for use as stabilizers. For deep frying, shortenings are produced to have a smoke point of 425°F. to 450°F. Oils for salad dressings must be "winterized" to prevent separation or congealing when cooled.

<sup>1</sup> Dr. Smith is Associate Professor of Food Chemistry in the School of Hotel Administration at Cornell University. This article is adapted from an address she gave before the Sixth Annual Workshop on Hotel Management held at Cornell University, January 25 to 29, 1960.

## Antioxidants Prevent Rancidity

Since rancidity develops when fats are exposed to oxygen in the air, shortenings have antioxidants added to them to retard this addition of oxygen. Vegetable oils already contain some natural antioxidant, Vitamin E or tocopherol. The antioxidants added to fats to keep them "sweet" include gum guaiac; B.H.A. (butylated hydroxyanisole); propyl gallate; B.H.T. (butylated hydroxytoluene); and N.D.G.A. (nordihydro guaiaretic acid); or a combination of two or more of these chemicals.

## Deep-Frying Fats

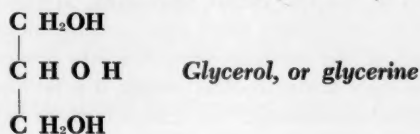
Commercially sold fats, whether solid or liquid at room temperature, are therefore the product of intricate chemical processes designed to make them suitable for specific uses. The fats requiring the greatest care in their proper use are those designed for deep frying. These shortenings or fats will be heated to high temperatures for frying, which puts their chemical components under considerable stress; and then they are used over and over again until their chemical structure breaks down. When shortenings break down chemically, the result is off-flavor food and rancidity. These conditions can be retarded and the useful life of the fat in the kettle can be lengthened when the person in charge knows exactly what steps to take to prevent the shortening from breaking down.

## The Chemistry of Fats

Some knowledge of the basic chemistry of fats will help the person in charge of food production to understand why shortenings must be carefully handled. Fats are a combination of glycerol and fatty acids; or, in chemical terms, "the glycerol ester of a fatty acid."

### Glycerine

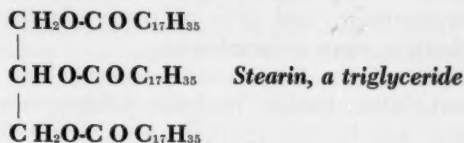
For an understanding of the chemical structure of the fat molecule, the primary formula with which to begin is that for glycerol, or glycerine:<sup>1</sup>



<sup>1</sup> C represents carbon; O, oxygen; and H, hydrogen.

## Fats

When fatty acids, animal or vegetable, are combined with this glycerol formula, fat is obtained. Fatty acids are long-chained molecules (generally numbering 10 to 18 carbons) of acids derived from natural occurring fats. Combining the glycerol formula shown above with that of fatty acid obtained from tallow or beef suet (stearic acid,  $\text{C}_{17}\text{H}_{35}\text{COOH}$ ) we obtain the chemical formula for stearin, a triglyceride:



The chemical formula for fat is sometimes written:  $\text{C}_3\text{H}_5 (\text{F.A.})_3$ , with "F. A." representing any fatty acid. The full formula is a long chain or "worm" of carbon atoms with various arrangements of hydrogen and oxygen atoms, which determine whether the fat is *saturated* or *unsaturated*.

### Saturated Fats

When the backbone of the fat's carbon chain contains its full complement of hydrogen atoms, it is called a "saturated" fat, which is solid at room temperature. While most saturated fats are of animal derivation, many vegetable fats and oils can be made into solid shortenings by changing their chemical structure.

### Unsaturated Fats

"Unsaturated" fats, which are found in fats from both animal and vegetable sources, are divided into two general categories: *mono-unsaturated* fats and *poly-unsaturated* fats. Mono-unsaturated fats have a pair of hydrogen atoms missing along the backbone of the carbon chain, so that one pair of carbon atoms share a double bond  $>\text{C}=\text{C}<$ . Olive oil, which has a high content of oleic acid, is a good example.

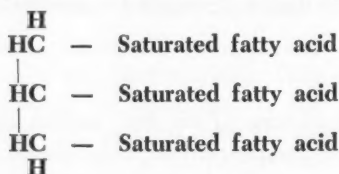
Poly-unsaturated fats have two or more pairs of the hydrogen atoms missing along the carbon chain backbone so that the carbon atoms share more than one double bond. Linoleic acid, found principally in corn, soybean, and cottonseed oils, is a poly-unsaturated fat.

## Variations in Fat Composition

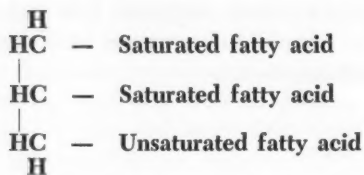
In brief, whether a fat is solid or liquid at room temperature depends upon the fatty-acid composition of the fat; that is, the length of the fatty acid chain and the degree or amount of unsaturated fatty acids vs. saturated fatty acids in the natural product. Manufacturers, by mixing several fats with different molecular structures, can obtain shortenings with varied melting points and smoking points for specific uses: salad oils (liquid under refrigeration); deep frying fats (heated to high temperatures); and cake or pastry shortenings (plastic at room temperatures).

Some of the fatty acids present in fats are stearic, oleic, linoleic, linolenic, palmitic, arachidonic, and butyric (butter). Any one of these fatty acids, as well as others, may be present as the mono, di, or tri glycerides in a fat or shortening. The presence of mono or di glycerides increases the emulsifying properties of a shortening.

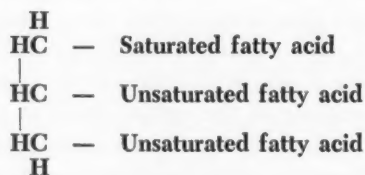
Here are some examples of the variability in composition of fat molecules or tri glycerides:



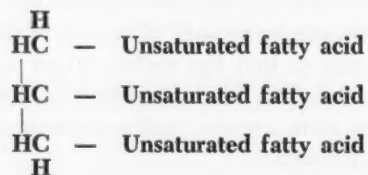
### 1. A tri-saturated fat



### 2. A di-saturated fat

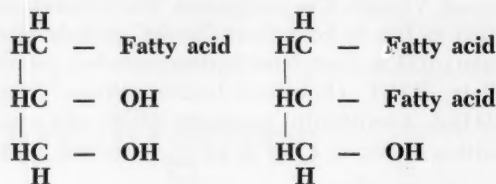


### 3. A mono-saturated fat



## 4. A tri-unsaturated fat

In addition to the varied fat structures shown above, the glycerides themselves may have varied structures. Mono and di glycerides are shown below. A tri glyceride is shown on page 61.



*A mono glyceride*      *A di glyceride*  
(One fatty acid present) (Two fatty acids present)

The manufacturers of shortenings have methods by which the fatty acids may be exchanged in a fat, termed "interesterification." Unsaturated fats, for example, add hydrogen to a double bond  $>\text{C}=\text{C}<$  and become saturated in this structure

$\begin{array}{c} | \quad | \\ -\text{C}-\text{C}- \end{array}$ . The shortening thus becomes plastic or "solid" in composition. The amount of mono and di glycerides present determines the emulsifying properties of the fat.

## Chemical Breakdown of Fats

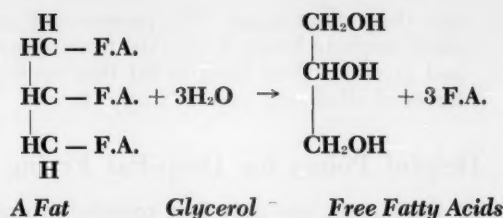
The presence of the double bonds  $>\text{C}=\text{C}<$  discussed above is also responsible for the deterioration of fat when it is exposed to air. Oxygen combines with them, forming a *peroxide*  $\text{C}-\text{C}$  and



giving an objectionable odor and taste to the fat as well as to the food cooked in it. The fat, under these conditions, is said to be *rancid*.

The presence of these same double bonds also results in *polymerization*, or the formation of compounds other than fats. Polymerization occurs at high temperatures which accelerate fat decomposition. These compounds obtained by polymerization of fats were once thought to induce cancer.

Flavor reversion is another form of fat deterioration, especially of fish and pork. Fat or shortening will also breakdown by the action of water or moisture in the fat, called *hydrolysis*. Hydrolysis frees fatty acids from their atom arrangement so that part of the mixture separates into glycerine and free fatty acids; in other words, it is no longer the original shortening. The diagram given below shows what happens when moisture ( $\text{H}_2\text{O}$ ) is added to a fat:



Thus, when moisture is introduced into the fry kettle, the fat is no longer fat, the smoke point is lowered, and the original fat has lost much of its potency. Most shortenings, when purchased, have only 0.05 per cent free fatty acids and a smoke point greater than 440°F. When the percentage of free fatty acids is increased to 0.10 per cent, the smoke point is lowered to 400°F. And when the percentage of free fatty acids is 0.50 per cent, the smoke point is lowered to 350°F. In brief, as the percentage of free fatty acids increases, the smoke point of the fat is lowered, resulting in further decomposition and foaming.

### Tests for Fatty Acid Content

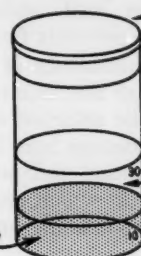
Shortenings are expensive and even 10 per cent more use from them in the fry kettle is worthwhile economy. The color of a fat naturally darkens on use, and this change in color may be used as an indicator of fat breakdown, but it is not reliable. The fat may still be quite usable for several more fryings.

A simple and much more reliable method for determining the free fatty acid content of a fat is outlined below. The formula for the A-1 reagent is given immediately below the diagram.

In a small glass vial with a plastic cap (which may be purchased at any drugstore) place 10 milliliters of the oil or melted fat to be tested with 20 milliliters of A-1 reagent. Shake this mixture thoroughly. If the solution is pink, there is less than 0.06 per cent free fatty acids. But if the solution is colorless or has no pink color, the fat has enough free fatty acids present to lower the smoke point below 350°F. From this point, decomposition of the fat progresses rapidly downward. The deep-frying fat should be discarded and the kettle thoroughly cleaned, rinsed, dried, and then filled with new fat.

GLASS VIAL, HOLDING  
2-3 OUNCES

PLASTIC COVER



10 ml. OIL OR FAT

20 ml. A-1 REAGENT

### CHEMICAL TEST FOR FREE FATTY ACIDS

**A-1 Reagent to be made up by your druggist:** 0.01 N alkali-indicator reagent is 100 ml. of 0.1N NaOH + 10 ml. of 1% phenolphthalein solution made up to a liter with neutral 95% alcohol. An "oil" contains 0.03% free fatty acid for each milliliter of A-1 Reagent used to neutralize a 10 ml. sample of oil. Therefore, the number of milliliters of A-1 Reagent used times 0.03% = % Free Fatty Acid. If this figure is greater than 1%, the oil definitely should be discarded. Some food consultants advise that oil with more than 0.6% F.F.A. should not be used.

### Lengthening the Use of Deep-Fry Fat

These recommendations will help lengthen the usefulness of shortening for deep-fat frying:

1. Shortenings for deep fat frying should possess a smoke point not lower than 425°F., and contain an antioxidant or a mixture of antioxidants.
2. Several small fryers are more economical of fat than a large fryer. The two-basket type is better than a one-basket type as the frying load in each basket is smaller, and the fry time and recovery time is lessened.
3. Fry foods at the proper temperature for each type of food. Charts are available, on request, from most manufacturers of shortening.
4. Between peak frying times, lower the temperature of the fat to 200-250°F. Overheating fat results in *polymerization* and *hydrolysis* (fat decomposition).
5. Use a thermometer and check the thermostat for accuracy.
6. Keep the fat level up at all times by adding additional fresh fat. This new fat replaces the fat absorbed by the food, dilutes any decomposition products, adds more antioxidants, thus prolonging the life of the fat provided that other recommendations set forth here are also followed.



7. Filter the fat every day. The *removal* of all foreign particles and sediment, such as charred crumbs, prevents fats from breaking down. Several thicknesses of cheese cloth or a commercial filter machine can be used. The filtered fat may be returned and used again.
8. Reduce excess moisture from foods to be fried. This reduces foaming and prevents excessive fat breakdown. Air, which contains oxygen, is introduced during foaming and oxygen reacts with fat.
9. Overnight or between stretches when the fat is not being used continuously, *keep it covered*. A floating aluminum cover can easily be made from sheet aluminum, and preferably with a slot in each side so that the cover fits down over the handles of the fryer.
10. Equipment made of brass or copper or with brass and copper fittings should not be used in deep frying. These metals tend to accelerate the breakdown of fats even in such minute quantity as one part per million. Some fats have built-in "metal scavengers" to remove metallic contamination.
11. Foods should not be salted over the fry kettle. Salt acts as a catalyst and hastens fat breakdown.
12. Keep deep fat kettles clean and remove gummy materials regularly through scouring. This lessens the incidence of fires and off-odors. After cleaning the deep fat kettles, rinse and

dry them thoroughly. The presence of any alkali tends to break down fats, forming soap and glycerol. Food fried in fat that contains traces of alkali will have a "soapy" flavor.

### Helpful Points for Deep-Fat Frying

**At the outset, use only fats containing anti-oxidants and with a smoke point of at least 425°F. Then observe these helpful points:**

- Fry at optimum temperature for each food type.
- Avoid overheating the fat.
- Reduce temperature during long periods between fryings.
- Avoid excess moisture in and on food to be fried.
- Strain crumbs and burnt particles from fat at least once a day.
- Do not salt foods over the fry kettle.
- Cover fat when not in use over long periods.
- Keep the fat level up by adding fresh fat to a given level marked in the kettle.
- Check fat periodically for excess free fatty acids that indicate fat breakdown and non-usability.
- Avoid contaminating fats with metals such as copper and brass.

### ORIGIN OF THE "PORTERHOUSE" STEAK

The name "porterhouse steak" originated about 1814 in the following manner:

Martin Morrison was the proprietor of a long-established and well patronized "porter house," located at 327 Pearl Street in New York City. Porter houses of that day served more than ale (porter), customarily providing travellers, bachelors and others with a cold lunch and one or two hot dishes. Morrison was famous for his excellent broiled beefsteaks.

On one Saturday evening, Morrison had cooked his last steak when an old favorite pilot made him a late visit, both hungry and thirsty, as he had been several hours without food. Morrison had nothing to offer but his family dinner for the next day, which consisted of a sirloin roasting piece. He cut off a good-sized slice, had it dressed and served, which the pilot ravenously devoured. Turning to his host (who had been expecting a blast because of the impromptu steak) the old tarpaulin roared: "Messmate, another steak just like that and an-

other mug of ale!" At the end of the meal, the old pilot squared himself toward Morrison, loudly vociferating, "Look ye here, messmate, after this I want my steaks off the roasting piece!"

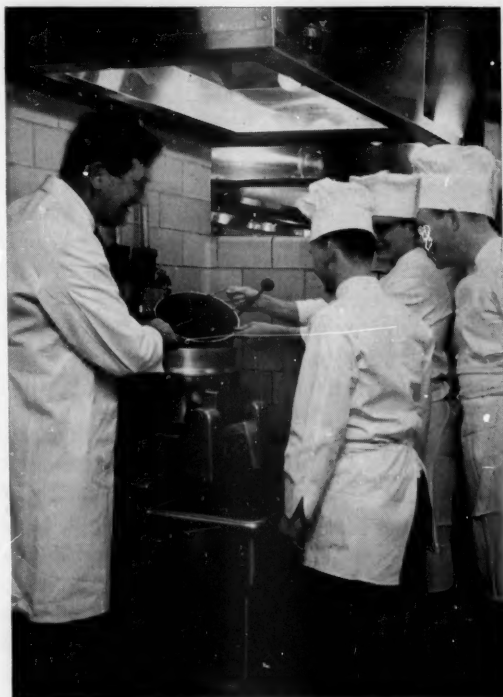
It was not long after this when the old pilot's companions insisted upon having these "small loin steaks" served to them. Morrison soon discovered that these steaks were more suitable in size to dish up for single individuals, and he ever after purchased the sirloin roasting pieces, from which he cut off these small steaks as they were called for, the large sirloin steaks becoming less in demand.

Thomas Gibbons, a butcher in the Fly Market, later began to cut these small steaks from the sirloin roasting pieces to Morrison's order, labeling them "for the porter house." Other butchers and keepers of porter houses admired the appearance and convenient size of these steaks. Soon they were on common order as "porter-house" steak. This name soon spread to other cities in the United States.

— adapted from Thomas F. De Voe  
in *The Market Assistant* (1867)

# Sanitation is part of Good Food Management

A sound sanitation program is based upon management's knowledge of bacterial hazards and upon line enforcement of good sanitary practices.



*Commander Bond instructs students in his quantity food production class in the use of a high-speed, low-water, all-electric trunnion kettle for the batch cooking of fresh spinach and other vegetables.*

*Com. Leslie H. Bond, U.S.N. Ret.<sup>1</sup>*

Good management cannot be separated from good sanitation practices. The more spectacular results of poor sanitation are the publicized episodes of food poisoning and lost food licenses. Fortunately, these regrettable incidents occur but rarely and then generally in those establishments that have long neglected strict observance of good sanitary practices. Seldom do such episodes develop overnight. On the other hand, for every food operation so blighted, a thousand more are probably courting disaster and a hundred of them may actually be repelling repeat patronage.

## Good Sanitation Pays

Food operators would probably pay more attention to developing a satisfactory program for food sanitation if it could be shown that such a program jingles the cash register more than indirectly. New customers come in to buy the advertised "blue plate special." But they may not return once they have viewed the lack of cleanliness visible in the dining area. Most patrons know that if good sanitary practices are not observed in table service and in public space maintenance, conditions in the kitchen are usually far worse.

<sup>1</sup> Commander Bond instructs students in the School of Hotel Administration at Cornell in quantity food operation and in sanitation. Previously, he was head of the Food Service Branch, Bureau of Medicine and Surgery, Navy Department, Washington, D.C.

Management seeking real help to implement a better sanitation program must look to professional sanitarians and to government health officers for real help in setting up a satisfactory sanitation program. Two steps to improve food service sanitation have recently been advanced: 1) more backing for the National Sanitation Foundation to help improve equipment; and 2) assisting the expediting of the revision of the U.S. Public Health Service's recommended Ordinance and Code for Regulation of Eating and Drinking Establishments. These two steps may be of critical importance to the sanitarian.

### Sanitation Aids

Presently, food managers have the benefit of aid from numerous outside sources to help them maintain sanitation. These include cleanser salesmen, equipment representatives, kitchen-design consultants, exterminators, sanitation experts, government health inspectors, and professional sanitarians. Let us examine the role that each of these sources plays in the typical sanitation program.

**Cleanser Salesman.** The representative of the soap powder firm is the person we see most often. The detergent salesman and his competitors offer to cure most of our sanitary problems with their electronic dispensers and compounds containing the advertised component "Ammocleanum" or its equivalent. From time to time, managers switch firms with the fervent hope that at least one of their vexing sanitation problems will disappear. Despite an intensive training program for our employees arranged and distributed by the "Caldu-soil Company," complete with the latest colored film entitled "Flying Soapsuds," our supervisors are soon complaining about the poor quality of their present dishwashing staff. We have expected a sanitation miracle to be performed by people whose primary interest is in selling us a product.

**Equipment Representatives.** The second person we might mention is the equipment representative, or perhaps a kitchen-design man. He will visit our operation and after thorough study make corrective recommendations. He is truly interested in the solution to our problems, for his reputation as well as that of his product are directly concerned. He makes recommendations as to type and capacity of equipment, where the equipment should be located for best product flow, and

whether it should be against the wall or 6 inches from it, and so forth. We accept his recommendations and make the installation. In a few months we may be bogged down in the same problem we attempted to design out. An example could be the improper use of a recently installed three-basin pot washing sink. It isn't uncommon to observe poorly supervised pot washers using all three basins to wash and soak in or perhaps to store dirty pots in. There is greasy liquid in each basin and no hot rinse water in evidence. Here again our supervisors may complain about the quality of the employees we are now hiring.

**Exterminators.** Then there are the exterminators, a vital sanitation link especially in the older physical plant. The exterminator firms probably use the same insecticide with different perfumes in the vehicle and bottle it under their own brand name. As managers, we are prone to purchase the service that keeps the bugs out of sight. We rock along for months, happy in the illusion that roaches out of sight denote absence of corpus. This dream state may be shaken by a customer finding a roach carcass in one of our baked products. The public health inspector may jar us by banging on our bulletin board and then taking a dim official view of the resulting scurrying hoard of small objects. Of course we jack up the exterminator firm. Then their man drips insecticide all over our plant for a few days. If we get upset enough, we change firms in the vain hope of permanent better service and no insects.

**Sanitation Experts.** Shortly after World War II we had the sanitation experts who came in with their flashlights, mimeographed training outlines, and film strips to train our employees. After our employees had seen the same film sixteen times, received the same handouts repeatedly, and learned that a flashlight is essential for good sanitation, they were likely to develop a mental defense that made them impervious to training.

**Government Health Inspectors.** Managers have the assistance of the city or state Public Health Inspector and of his inspection reports. Many training aids are usually available through this official. These sanitarians' interests are directed solely toward better sanitation in our establishments. When the manager occasionally accompanies the inspector in examining his establishment he gains insight into more than the superficially clean appearance of the operation. Moreover, the

manager and his supervisors will be speaking the same language when discussing any sanitation aspect of different parts of the plant. One or more supervisors should always accompany the sanitarian when he inspects the plant. This practice will permit the supervisor to receive the sanitarian's slant as conditions are observed.

An example of the value of having the supervisor accompany the inspector could be the detection of bacterial slime growing on upper surfaces of doors of ice-making storage bins. A note of the presence of this condition may be meaningless to the supervisor. If the sanitarian has the supervisor run his finger up on the collecting ledge, he will always so inspect that area.

Such a tour gives the supervisor a fresh overview of the total sanitary picture which should be of value in solution of sanitation problems mutually affecting other supervisors. At this same time the supervisor should be exposed to the latest information on preventive and remedial sanitation measures. The supervisor would then be in a position to furnish fresh, correct information to his employers as he trains them.

**The Professional Sanitarian.** If we could obtain the full-time services of the professional sanitarian in our establishments, our sanitation problems could be rapidly cured. But only the large enterprise could afford this full-time service. The average operation could use only part-time service, perhaps for assistance in setting up the educational and training program for our employees, plus, of course, the aforementioned inspectorial service.

## Management's Role in Sanitation

We have hardly mentioned the person with the most vital interest in sanitary problems of the food service operation—the manager. His profit and loss statement will be affected by the sanitary status of his operation. Good will gained or lost, food losses through spoilages, unavoidable difficulties with public health enforcement personnel, lowered or increased labor costs per unit of service furnished may be directly affected by the sanitary status of his establishment.

**The Supervisors.** The manager administers his food operation through his supervisors. These, depending upon the size and type of his operation, could include the steward, chef, dietician, butcher, pantryman, head barman, and so forth. The man-

ner of setting up the administrative hierarchy may produce different patterns of relationship between manager and supervisor but a direct-line relationship must obtain.

Sanitation personnel, including the sanitarian and the detergent salesman, occupy a *de facto* staff relationship with the manager and with the supervisor. *A staff man cannot enforce standards of performance on people who are subject to line control.*

Not to discount the psychological theory that a man has to feel "loved" to give his best to a job, we find that the majority of our employees are most strongly motivated toward desired performance standards by their line supervisor's enforcement authority. Temporary transfer of this authority by the manager to a sanitarian who conducts a training course looks fine on paper. Temporarily, the employee may respond to this situation. Yet, upon completion of the course and with the release of pressures, the employee is likely to revert to his old, comfortable, familiar habits.

**Enforcement Problems.** When a manager determines that a five-ounce portion of beef loaf will sell for one dollar, no fluctuation in size or price is permitted. No employee attempts to change the portion to six ounces or to change the price to ninety cents. The order establishing the price and portion proceeds in an orderly fashion through the line organization.

On the other hand the sanitary handling of this product probably will not follow as orderly a procedure. If a line sanitation program is not in operation, the cook may handle the meat mixture with his hands instead of with tools. He may not properly refrigerate the mixture while holding it awaiting cooking time. Even the pot washer may or may not properly wash the pan it is cooked in.

*Successful sanitation in the food operation must be a line supervised function.* Training, motivation of personnel, and enforcement must be through line supervisors. Supervisors should be educated by sanitarians in a program that is under the direct control and surveillance of the manager.

No manager depends on the C.P.A. firm doing his annual audit to supervise his daily accounting. Why should he depend on periodic training by staff personnel to insure good daily sanitation? An error in the accounting records may later be corrected. An unsanitary incident may not be correctable; for example, a serious food poisoning incident.



## Requirements for a Sound Program

The manager should receive an education in sanitation. If he missed it in his undergraduate days, he should take advantage of an evening course, one prepared and taught by a competent professional sanitarian. The supervisor should also receive instruction in all aspects of sanitation applicable to his employer's establishment. This instruction should be firmly based on the fact that unsanitary food service is of bacterial origin. It should include bacteriological precepts as well as elucidation of the food infections and food intoxicants that are hazardous in modern food service operation.

Means of preventing massive multiplication of bacteria and formation of toxins in food must be examined. Methods of preventing contact contamination as well as the impossibility of completely preventing air-borne contamination of foods under present conditions should be demonstrated.

The importance of knowing the history of any perishable product being processed or served should be emphasized. A skeptical, questioning attitude concerning the use of anything perishable should be developed in the supervisor and the worker. Insect and rodent infestation and preventive measures should be covered. Also included should be teaching techniques and methods of using training aids that permit the supervisor either to train or to assist the staff man to train the employees and then to follow through with constant on-the-job enforcement and training.

Each employee should have thorough training in sanitation that covers every aspect of his job. While it is impossible to train an employee without explaining the bacterial causes of food poison-

ing, a simple explanation of growth time and means of contamination as well as susceptible food and dangerous temperatures should be sufficient. When the supervisor elicits interest from employees, they can be further informed concerning pertinent bacteriological facts.

The manager should insure removal of any guilt complex in his supervisors and workers by assuming himself the responsibility for deciding whether suspect food stuffs are to be used or discarded. This is particularly significant for left-overs with a hazy history and for damaged tinned products. In the case of gastric incidents, there is some danger of attempted concealment of the use of specific products if the responsibility is not openly assumed by management.

The advancement of supervisors and employees should be, at least in part, dependent on demonstrated practices of good sanitation. This factor should be evaluated as thoroughly as the other technical aspects of job performance.

## Conclusion

The cliché "Sanitation is a way of life" can be made to come alive. We cannot activate it with a once-a-month get together at which a staff sanitarian tries to carry the load that properly belongs to line personnel. Perhaps the professional sanitarian should stop agreeing that unsanitary food service is merely sinful and should try to convince the manager that it is costing him money. The sanitarian can contribute valuable knowledge, skill, and know-how to assist management in overcoming sanitation problems. Management must assume responsibility for every aspect of sanitation in the food service operation.

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Years ago when French chefs dominated the world of fine cookery, the kitchen had a status system developed to the finest details, exactly as uniforms and insignia place people for the army. This system has steadily disintegrated, particularly in kitchens with women cooks and food production managers. The new status system may rest upon different factors, yet it is ever present in the food operation. A high-skill person ranks above a low-skilled person, a high-wage person over one of lower pay, and a long-time employee over one recently hired. Other things being equal, the employee preparing finished products tends to have higher standing than one who works in the earlier stages of preparation.

—Professor William F. Whyte, *Cornell University*

"Mark-sensed cards and punched tape are the electronic equipment most applicable to the uses of the restaurant industry.

—Frank Wallace, *Peat, Marwick, Mitchell & Co.*

# Food Mixtures and *Staphylococcus*

Some highly perishable foods can be made less dangerous by increasing their basic acidity.

by Karla Longree<sup>1</sup>

Without question, research and development are vital to the advancement of any kind of industry, including the food service industry. Quantity food research at the New York State College of Home Economics at Cornell University has dealt with problems arising in connection with the production and service of foods prepared in large quantity. Important differences exist between large quantity and small quantity food preparation formulas and procedures. For example, in quantity food preparation, the use of power equipment, the necessity of preliminary preparation, the rate of heating and total heating time of large batches, the holding of cooked foods for relatively long periods of time before they are consumed, and the refrigeration of large batches are all factors that create special problems. These factors may affect texture, color, flavor, nutritive value and bacterial counts of the food.

The study reported here is part of a larger project entitled "The Effect on Bacterial Counts of Holding, Refrigerating, and Freezing Cooked Food Prepared in Quantity."

Most food stuffs are subject to spoilage and deterioration. This statement applies, of course, also to cooked foods which take quite a prominent place in the group of perishables. In fact, the list of menu items accused of having been vehicles for the growth of food-poisoning organisms is alarmingly long.

In studying the probable causes of food spoilage

and food poisoning incidents it is frequently found that the food under suspicion harbors large numbers of bacteria; and furthermore, that the food has been held at temperatures favorable for bacterial multiplication for several hours.

## Danger Zones

The temperature range at which food-poisoning bacterial growth can be expected to take place is between 120°F. to 42°F. This temperature range is aptly called the "danger zone." It is relatively easy to maintain food hot at temperatures above 115°F. and also, to keep food cold once it is cold. But to achieve that the food to be cooled passes through the danger zone quickly is indeed a difficult task. Research has shown that large batches of warm food cool slowly even under refrigeration. (See references 2,4,5,6 at the end of this article.) This is a serious problem. Since it is practically impossible to exclude all micro-organisms from entering batches of cooked food cooling, conditions must be created which assure quick cooling.

Besides by temperature, bacterial multiplication is strongly affected by the nature of the food in which bacteria thrive. Most of the bacteria causing spoilage of cooked foods and food poisoning in man grow best in foods that are neither very acid nor very alkaline, but they may grow over a wide acidity range.

Scientists measure degree of the *acidity* in food by determining its pH; at a pH of 7 the food is neutral; a pH value lower than 7 indicates that the food is acid; and a pH above 7, that the food is alkaline. Here are some examples: lemons have a pH value of approximately 7.5; many fruits have

<sup>1</sup> Dr. Longree is Research Professor in the Department of Institution Management of the New York State College of Home Economics at Cornell University.

pH values near 3.5, tomatoes about 4.2; and whole egg 7.8 to 8.0. Near a pH of 4.5 many of the food spoilage and food poisoning bacteria multiply slowly or cease to multiply. If we could render some of our highly perishable foods and food mixtures more acid we would make them less attractive to bacteria. It was with this thought that the study reported in this article was planned.

### Purpose of the Study

The purpose of the investigation was to study effect on pH and on bacterial growth of some selected ingredients used in the preparation of some common food mixtures, such as soups made from broth and from milk base, poultry stuffings, turkey salads, potato salads and protein-base sandwich fillings.

Soups are popular items in institution food service, especially when inexpensive and hot menu items are in demand. Soups are often served in food establishments with limited refrigeration facilities and are also widely marketed as a frozen product. Most soups are made either from a stock or a milk base, both of which are excellent media for bacterial growth. Combined with the base are various ingredients such as cereals, legumes, vegetables, potatoes, meat, poultry, fish and various seasonings. Little was known about the keeping quality of different soups and the contribution of each ingredient to the keeping quality.

Stuffed poultry is frequently mentioned as a cause of food poisoning outbreaks. Considering the bacteriological aspects, the practice of stuffing large turkeys before roasting must be questioned. Castellani and co-workers (3) studied the roasting time of turkey and the internal temperatures reached. They determined at what temperature food poisoning micro-organisms introduced experimentally into the stuffings were killed. They concluded that for birds over 18 pounds there is very little, if any, margin of safety.

Baking the stuffing in the same or another pan outside the bird is regarded as good practice in institution food preparation. Results of tests made by the American Institute of Baking indicated that heat penetration was rapid in bread stuffings baked separately in shallow pans. (1) But, in view of the fact that to stuff poultry is still a popular practice and that stuffings are often subjected to long holding periods either inside the poultry or outside, the question remained: how potentially dangerous are stuffings; how well do they support bacterial growth?

The composition of the stuffing mixture might well play an important role in bacterial multiplication. Most stuffings are made of bread, liquid (usually broth), onion and seasoning. Many contain, in addition, giblets or egg. But there are numerous other variations of the conventional stuffings. Information was needed about the effect which the various ingredients might have on bacterial multiplication and, therefore, on the keeping quality and wholesomeness of the mixtures.

Sandwiches are abused in many ways bacteriologically. They are carried, and are often held for hours on counters, in lockers, automobiles, lunch boxes, and other warm places unsuitable for the storage of perishables.

Potato salads and meat salads are frequently cited as the cause in food poisoning outbreaks and were included in the study for that reason.

### Experimental

The food samples were prepared in the quantity food laboratory of the Department of Institution Management. The mixtures were checked for pH and they were served to a panel of judges who rated them for palatability. The bacteriological work was carried out in the Laboratory of Bacteriology, Department of Dairy Industry, under the direction of James C. White who was a co-operator in this project. The mixtures were sterilized, inoculated with the test organism, and incubated at a temperature favorable to the growth of the organism. Determinations of pH were made before and after sterilization. A *Staphylococcus aureus* was used as the test organism in all studies reported below.

### Soups

The ingredients were chosen on the basis of a preliminary study in which it was found that some food materials were more active than others in affecting bacterial growth, either favorably or unfavorably. Clams, various meats, and various vegetables were added in varying amounts to a base of stock, white sauce, or to milk.

Bacterial multiplication was determined in these mixtures. The information gained from the result of these tests were then used in developing formulas for soups; it was hoped that they would prove to be poor supporters of bacterial growth.

**Results:** Carrots, tomatoes, green peppers, and canned okra when added in appropriate amounts decreased bacterial growth below counts found in

plain broth, milk or cream sauce. Counts considerably higher than those found in the above mixtures occurred in samples containing comparable amounts of onion, asparagus, eggplant, spinach, and veal.

Bacterial counts were still higher in mixtures containing green beans, mushrooms, corn and peas when added in appropriate amounts. Extremely high counts were found in the mixtures containing meat, clams and peas.

In the second part of the study, actual soup mixtures were tested for their ability to support growth of the test organism. The formulas of the soups were developed on the basis of the findings of this investigation. Adjustment was made by one or several of the following methods: Decrease or omission of peas, addition or increase of tomatoes, addition or increase of carrots and, addition or increase of sweet green peppers. On the basis of palatability tests the formulas not well accepted by the judges were eliminated. Some of the soups made with formulas containing relatively high amounts of inhibiting ingredients are listed below; pH values, bacterial counts and palatability values are given in the table also. (See Table 1)

In general, final counts were low when the acidity of the soup was high or when the pH of the mixture was near 4.5. The inhibitory action of carrot cannot be explained on the basis of acidity alone.

### Stuffings

The general plan for the study was as follows: in three basic stuffings containing a cereal (white bread, bulgar wheat\*, and cornbread), onion, shortening, spices, and chicken broth, the liquid was varied to include orange juice in different proportion. In addition, substitution was made for part of the liquid and bread using apple, dried apricot, celery, cranberry, egg, giblet, green pepper, oyster, parsley, raisin, ripe olive, and walnut.

Over 100 different stuffings were prepared. The mixtures were judged by members of the Department of Institution Management for acceptability, and then inoculated with *Staphylococcus*.

**Results:** Some of the results are presented in Table 2. As in the soups, bacterial growth decreased as the pH was decreased and the mixtures became

\* Bulgar, bulgur, bulgour

**Table 1**  
**pH OF AND BACTERIAL GROWTH IN SOUPS PREPARED IN QUANTITY**  
**Proportion of Selected Ingredients**

	Canned Tomato	Fresh Carrot	Fresh Green Pepper	Total	pH after auto- claving	Log final count per ml.	Palata- bility <sup>1</sup>
	%	%	%	%			
Chicken gumbo	7.3	5.5	7.3	20.1	5.1	4.5	2
Consomme madrilene	24.0			24.0	4.6	2.1	2
Cream of carrot		26.8		26.8	5.8	4.3	2
Cream of tomato	46.2			46.2	5.1	2.1	2
Cream of tomato and mushroom	47.3			47.3	5.1	2.1	2
Creole	25.5		2.0	27.5	4.7	2.1	2
Dixie vegetable*	14.8	4.5	0.2	19.5	4.9	3.7	2
English beef broth	23.6	5.5	2.7	31.8	4.9	4.7	2
Minestrone	20.6	4.1	2.7	27.4	5.0	4.5	2
Mock turtle	18.6	4.7		23.3	4.8	3.2	1
Mulligatawny				0	5.5	4.3	
Spanish bean	24.5			24.5	5.0	4.2	2
Split pea	18.6	10.0		28.6	5.6	5.1	2
Stockless vegetable	28.6	5.0		33.6	4.8	2.1	2
Tomato bouillon	51.0			51.0	4.2	2.1	2
Tomato-clam bisque	22.4			22.4	5.7	4.5	2

<sup>1</sup> "Very acceptable"—2;

"acceptable"—1;

"unacceptable"—0.

\* Contained 1.7% peas



*Table 2*  
pH, BACTERIAL GROWTH, AND PALATABILITY OF WHITE BREAD STUFFINGS

STUFFING	ALL BROTH			$\frac{1}{2}$ ORANGE JUICE + $\frac{1}{2}$ BROTH				
	pH		Log final count per gm.	Palata- bility	pH		Log final count per gm.	Palata- bility <sup>1</sup>
	Before auto- claving	After auto- claving			Before auto- claving	After auto- claving		
Basic <sup>2</sup> (controls)	5.5	5.3	7.4	1.5	4.5	4.5	4.2	1.0
Apricot <sup>3</sup>	5.0	4.5	3.0	1.0	4.3	4.4	3.0	1.0
	5.2	4.7	4.0		4.4	4.2	4.0	
Cranberry <sup>3</sup>	4.8	4.6	3.9	1.0	3.5	4.1	3.6	1.0
	4.7	4.6	4.0		4.4	4.3	4.0	
Eggs <sup>3</sup>	6.0	5.3	7.6	1.5	4.9	4.7	3.9	1.0
	5.7	5.3	6.0		4.6	5.0	3.0	
Giblet <sup>3</sup>	5.7	5.4	7.4	1.5	4.6	4.3	4.0	1.0
	5.6	5.5	6.0		4.4	4.6	3.0	
Oyster <sup>3</sup>	5.6	5.1	7.4	1.5	4.7	4.5	4.0	1.0
	5.2	5.1	8.0		4.4	5.0	3.0	
Raisin <sup>3</sup>	5.5	4.7	3.0	1.5	4.7	4.3	3.0	1.0
	5.3	4.5	4.0		4.2	4.7	3.0	

<sup>1</sup> "Very acceptable"—2;

"acceptable"—1;

"unacceptable"—0.

<sup>2</sup> Values are averages of all controls.

<sup>3</sup> At 5% substitution.

more acid. Ingredients which were used in amounts acceptable to the judges and which lowered bacterial counts considerably were: apricot, cranberry, orange juice, and raisin. Very high bacterial counts were found in the mixtures containing egg, giblet and oyster. In general bacterial counts were lowest in the white bread stuffings, and highest in the cornbread stuffings.

#### Salads and Sandwich Fillings

The formulas for the potato salads were varied as follows: high and low mayonnaise, high and low egg, and high and low pickle—in various combinations. The formulas of the turkey salads were varied so as to include high and low amounts of mayonnaise, celery, and pickle. In all, 48 kinds of salads were prepared. In addition to varying the formula, the method of preparation was given attention: some samples were prepared in which meat and potatoes were marinated with French dressing immediately after inoculation with the bacteria (inoculation simulates "handling"), and the marinade, which is very acid, was allowed to act for one hour before the remaining ingredients were added; other samples were not marinated.

The formulas for the sandwich fillings were varied to include (besides mayonnaise which was used for each of the fillings) lemon juice, onion, garlic, dry mustard, Worcestershire sauce, raisin, olive, pickle, pineapple, cranberry, and apricot, making a total of 72 kinds of fillings. The freshly prepared mixtures were tested for acidity (pH), scored by the panel of judges for flavor, appearance, and general acceptability, and then sent to the Laboratory of Bacteriology for bacteriological treatment and analysis.

**Results:** Some of the results are given in Tables 3 (salads) and 4 (sandwich fillings).

**Salads:** Bacterial counts were high in many of the mixtures. Lowest counts were found among the salads made with a generous amount of mayonnaise and with pickle, both being highly acid ingredients. Marinating the sliced potatoes and the meat with French dressing immediately after they were inoculated with bacteria was an aid in reducing bacterial multiplication as compared with unmarinated samples. For practical application of the findings, the following recommendations are therefore offered: salad materials that

*Table 3*  
BACTERIAL GROWTH IN POTATO SALADS  
Effect of marinating; Effect of Mayonnaise, Egg, Pickle

Salad Formula	Mixture not marinated following inoculation with bacteria		Mixture marinated following inoculation with bacteria	
	pH	Log final count per gm.	pH	Log final count per gm.
<b>POTATO</b>				
High mayonnaise <sup>1</sup>	5.3	8.5	4.9	4.5
Low mayonnaise <sup>2</sup>	5.6	9.0	5.1	8.0
Low mayonnaise <sup>2</sup> - high egg <sup>3</sup>	5.8	9.3	5.4	9.1
Low mayonnaise <sup>2</sup> - low egg <sup>4</sup>	5.7	9.1	5.3	8.3
Low mayonnaise <sup>2</sup> - high pickle <sup>5</sup>	4.7	6.4	4.7	4.5 Less than
Low mayonnaise <sup>2</sup> - low pickle <sup>6</sup>	5.1	8.2	4.9	5.3
<b>TURKEY</b>				
High mayonnaise <sup>1</sup>	6.0	8.9	5.4	6.4
Low mayonnaise <sup>2</sup>	5.8	8.8	5.6	8.5
High mayonnaise <sup>1</sup> - high pickle <sup>5</sup>	5.0	7.3	5.4	4.9
High mayonnaise <sup>1</sup> - low pickle <sup>6</sup>	5.6	8.3	5.6	6.0
Low mayonnaise <sup>2</sup> - high pickle <sup>5</sup>	5.3	8.2	5.3	6.4
Low mayonnaise <sup>2</sup> - low pickle <sup>6</sup>	5.8	8.6	5.6	7.0

<sup>1</sup> 20%      <sup>3</sup> 7½%      <sup>5</sup> 6%  
<sup>2</sup> 10%      <sup>4</sup> 3.7%      <sup>6</sup> 3%

*Table 4*  
BACTERIAL GROWTH IN PROTEIN BASE SANDWICH FILLINGS  
Effect of Lemon Juice, Pickle, Cranberry and Pineapple

FILLING	NO LEMON JUICE IN FILLING			LEMON JUICE IN FILLING		
	pH	Log final count per gm.	Palata- bility	pH	Log final count per gm.	Palata- bility <sup>1</sup>
<b>EGG</b>						
Plain	6.1	9.3	1.4	5.5	9.4	1.3
Dill pickle	5.9	8.2	1.3	5.2	5.3	1.4
Sweet pickle	5.1	5.8	1.4	4.8	3.1	1.4
<b>HAM</b>						
Plain	5.9	9.1	1.7	5.9	8.4	1.5
Cranberry	5.3	5.4	1.4	5.1	4.6	1.1
Sweet pickle	5.1	5.4	1.4	5.1	3.0	1.2
<b>TURKEY</b>						
Plain	6.0	8.9	1.3	5.7	7.6	1.3
Dill pickle	5.7	5.4	1.1	5.3	4.1	1.1
Pineapple	5.5	5.3	1.4	5.3	4.0	1.3

"Very acceptable"—2;

"acceptable"—1

"unacceptable"—0

have been handled, such as sliced potatoes, cut-up turkey, or chicken, should be marinated immediately after handling (slicing or cubing), using one-third of the total salad dressing allotted to the formula in the form of a marinade. The marinated mixture should be held under refrigeration, until the remaining ingredients are added. Since eggs are much relished by bacteria, the cooked eggs should be kept separately and added to the mixture just before it is served.

**Sandwich Fillings:** Almost all of the filling acceptable to the judges were good supporters of bacterial growth. Acceptable fillings in which counts were lowest were those that contained rather high amounts of acid ingredients such as lemon juice, pickle, relish, and cranberry. In general protein-base sandwich fillings may well be considered as potentially dangerous and should always be kept under refrigeration until served.

### Conclusions

It is felt that the information given in this report might be an aid in furthering our appreciation of the dangers of bacterial activity in cooked foods. Considering the bacteriological aspects of the many food ingredients we incorporate into the various menu items that we prepare and serve, we are impressed with the fact that many of them are good or excellent supporters of bacterial growth.

In addition to keeping our standards of hygiene high at every step of food preparation and service we must continue to rely on efficient refrigeration methods for the wholesomeness of food served.

### Literature Cited

1. American Institute of Baking: *A Bacteriological Investigation of Bread Stuffings*. Research Reporter No. 1 (Nov.), 1952.
2. Black, Lois C. and Martha N. Lewis. *Effect on Bacterial Growth of Various Methods of Cooling Cooked Foods*. J. Amer. Diet. Assoc. 24 (5): 399-404, 1948.
3. Castellani, A. G., Clarke, R. R., Gibson, M. I., and Meisner, D. F.: *Roasting Time and Temperature Required to Kill Food Poisoning Microorganisms Introduced Experimentally into Stuffing in Turkeys*. Food Research 18: 131-138, 1953.
4. Longree, Karla and James C. White. *Cooling Rates and Bacterial Growth in Food Prepared and Stored in Quantity*. I. Broth and White Sauce. J. Amer. Diet. Assoc. 31 (2): 124-132, 1955.
5. Moragne, Lenora, Karla Longree and James C. White. *The Effect of Some Selected Factors on the Cooling of Food Under Refrigeration*. In press. J. Milk and Food Technology.
6. Weiser, H. H., A. R. Winter and Martha N. Lewis. *The Control of Bacteria in Chicken Salad - Micrococcus pyogenes var. aureus*. Food Res. 19 (5): 465-471, 1954.

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"The safest plan for the inexperienced is to select respectable dealers, on whom they can rely. They may charge higher prices for that which they furnish; in the end, however, more satisfaction is afforded, by less risk, and more saving and relish—in fact, cheaper in every way, because all good articles are with profit used—that, while the best articles may cost more money in the purchase thereof, they will be found to be the most economical in the end."

—Thomas F. De Voe, *The Market Assistant*, (1867)

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Potatoes were first known and discovered in America in the reign of Queen Elizabeth. John Hawkins first imported them into Europe from St. Fee, in Spanish America. For a long time the potato was treated as a fruit, baked in pies with spices and wine, or eaten with sugar; and it was many years after before it was cultivated as a field crop.

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A tremendous change in the eating habits of France and other countries resulted from the French Revolution which led to the rise of the modern restaurant. Perhaps the most brilliant epoch in the development of modern gastronomy was between 1800 and 1825 when Paris was full of remarkable cooks and remarkable restaurants patronized by royal personages, statesmen, financiers, travelers, adventurers, and pretty, worldly women.

# Improvements in Dishwashing

Improved detergents and dishwashing equipment help keep labor costs in line, save time, reduce tableware inventory, improve sanitation, and eliminate "scullions" from the kitchen staff.

by Clyde R. Weihe, Jr.<sup>1</sup>

Few persons wanted to do scullery work even at good wages in the burgeoning economy that followed World War II. Moreover, food service operators found themselves caught in a cost-price squeeze once government controls were removed on wages and prices. While food costs, wages and overhead spiralled upward, the price the public was willing to pay for restaurant food lagged behind. The net result was that most food operators found their profit ratios becoming increasingly narrow. Because of this dilemma, chemical companies and dishwashing machine manufacturers addressed themselves to the problems of reducing the labor needed for warewashing and of helping to keep these costs in line.

As the outcome, the new chemicals and the more highly mechanized dishwashing machinery have now reduced the time and labor once required to wash and dry dishes, glasses, and silverware at least 40 per cent in the average food operation and as much as 70 per cent in certain others. In addition to keeping labor costs in line,

these new developments have improved sanitary conditions, a matter of primary importance to food operators, and also enhanced the appearance of tableware when it is washed. Because tableware can now be more quickly washed and dried than was formerly true, a smaller inventory of it is needed, thus providing a further reduction in operating costs.

The role of "dishwasher" and "potwasher" meanwhile has been upgraded from that of drudging scullion to that of machine operator. It is easier to fill these jobs and keep helpers because the work is easier and the hours are better. Dishes no longer need to be washed at all hours of the night when chemicals and machinery can do a thorough job quickly. One man can do most of the work that three or four dishwashers formerly did. For the best results, though, food operators have found that to operate their dishwashing equipment they should hire workers more intelligent and better trained than they had on the payroll a few years ago.

## Chemical Developments

A vast improvement in dishwashing has been the new detergents which were introduced about twelve years ago. These high-powered detergents remove stain and film from dishes during the washing process. Previously, the practice had been to dip the entire china inventory periodically into a strong acid solution to clean off stain and film accumulations left on dishes washed in ordinary dishwashing solutions. Tableware was usually dipped into a carefully prepared muriatic acid solution. A portable lining was put into the sink to

<sup>1</sup> Mr. Weihe graduated from Pennsylvania Nautical School and served as an officer in the U.S. Merchant Marine Service during World War II. He later chose to pursue the problems relating to turbulent waters used in the cleaning of food service equipment. He was nine years with the Economics Laboratory, Inc., four of these years in the capacity of New England Sales Manager. Currently, Mr. Weihe is President of Adams Manufacturing Company in Waltham, Massachusetts which manufactures food service equipment. His article is adapted from an address he gave before the Sixth Annual Workshop in Hotel Management held at Cornell University, January 25 to 29, 1960.



protect it from the action of the acid. This acid-bath routine was not only expensive and time consuming, but sometimes workers received serious skin burns from the acid. And if the acid solution was not properly neutralized before being emptied down the drain, leaks developed in water traps and plumbing lines.

Management's enthusiasm for the new high-powered detergents was soon dampened because of their corrosive action on the dishwashing machinery then available. For, unfortunately, these high-powered chemicals that performed such a fantastic job in removing stains from china also removed, by corrosive action and electrolytic processes, the soft brass and bronze parts of the dishwashing machines. In some instances, bronze pump impellers completely disappeared in short order. Machine manufacturers quickly rose to the occasion, however, by substituting stainless steel and ny-resist parts. Other mechanical developments are discussed later in this article.

## Drying Agents

Speeding up the drying process was the second major improvement in dishwashing chemicals. Faster drying was accomplished by introducing a chemical into the water to alter its surface tension; in other words, to make water "wetter" so that it drained off tableware more quickly, leaving no spotty deposits. This "flash-drying process" eliminated the tedious, time-consuming, and unsanitary "handtoweling" of silverware and glassware in particular.

Chemicals to promote "flash drying" were first introduced for silverware. Silverware, upon being removed from the dishwasher, was immediately immersed in especially heated water tanks that contained a minute quantity of the wetting agent (ten parts per million). Water thus treated drained off the silverware in a matter of seconds, leaving it spot free. Basket containers were designed to hold the silverware upright, promoting rapid drainage. But, before silverware could be dipped into this drying solution, it had to be washed thoroughly clean; otherwise the solution became soiled and left a dull finish on the silverware. This "flash-drying process" was later extended to include glassware.

## Improved Processes

When first introduced, this chemical additive was somewhat expensive. Moreover, care needed

to be exercised to insure that the correct proportion of the wetting agent was added to the tank of heated water before immersing the silverware and glassware. These precautions were sometimes difficult to impress upon untrained dishwashers.

To offset these problems, the manufacturers soon devised a way to eliminate the extra step of immersing glasses and silverware in a special "flash-drying" solution after being washed. The wetting agent was introduced automatically into the final rinse system of the dishwashing machine itself, thereby extending its quick-drying qualities to dishes as well as to silverware and glasses. These automatic injectors, for which several methods were devised, have now been developed to the point where they are accurate, dependable and, most important, inexpensive to use.

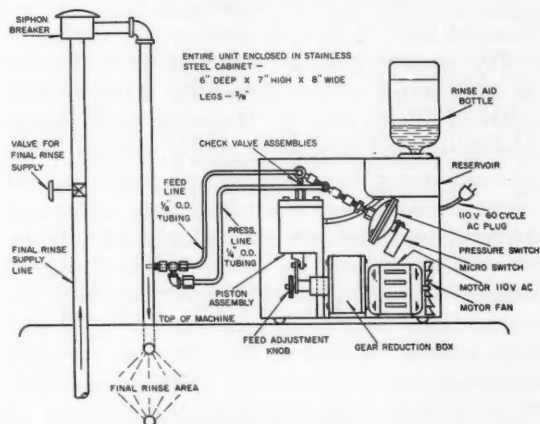


Diagram 1. An Automatic Injector for Drying Agent

*This diagram shows schematically the manner in which the proper amount of chemical required for "flash drying" is automatically dispensed directly into the final rinse line of the dishwashing system.*

These wetting agents, when first introduced into the final rinse system of the dishwashing machine, occasionally caused excessive suds in the washing chamber, which hampered the cleansing action. This problem was partly overcome by increasing the wash-water temperature, partly by introducing automatic pre-scrapping methods that reduced the soil load (protein content) of the wash water, and by detergent manufacturers who compounded special chemical suds inhibitors into their washing formulas. This close cooperation between the chemical industry and the manufacturers of dishwashing machinery has enabled food service

operators to take full advantage of the miraculous new detergents and chemical wetting agents.

Further to insure the economical use of their products, chemical companies developed a variety of automatic dispensers that would control the amount of detergent put into dishwashing machinery. The progress in perfecting these dispensers has been phenomenal. First, a simple hydraulic unit was devised to add a small quantity of detergent with each rack of dishes to be washed.

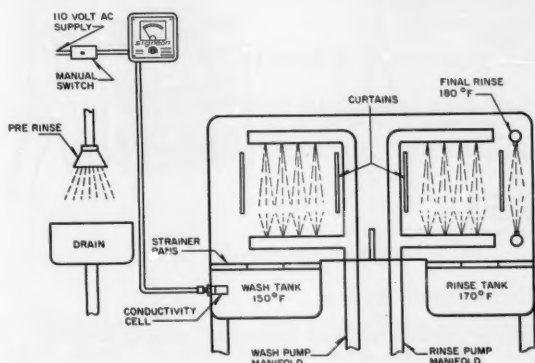


Diagram 2. An Automatic, Electrically Controlled Detergent Dispenser

*This detergent dispenser automatically gauges the contents of the dishwashing tank to insure that the proper amount of detergent is constantly present. If the tank solution does not have sufficient detergent, the dispenser automatically injects the required amount.*

Now electronic dispensers have been perfected which constantly and electronically gauge the amount of detergent in the wash tank. These electronic dispensers automatically maintain the proper detergent concentration through the use of solenoid valves and reservoirs holding detergent. When the dispenser reservoir needs reloading, these units alert the dishmachine operator by means of signal lights or warning buzzers. In short, no effort has been spared to make the use of dishwashing chemicals easy to control and completely dependable.

### Tarnish Removers

An effective, economical, and harmless method has been devised to remove stains and tarnish from silver service. It was discovered that the combination of detergent with hot water and aluminum set up an electrolytic action. By placing

an aluminum strip in a solution, tarnish is transferred within a few seconds from the silverware to the aluminum. This "magic wand" action eliminates hours of hand polishing. Several types of baskets and tanks have been designed to contain expendable aluminum detarnishing strips in the presoaking and washing process.

### Other Chemical Aids

Chemical formulas have been developed to solve most washing problems related to the cleaning of plasticware and aluminum. Recently, special iodine sanitizing formulas have been marketed that make it possible to wash and sanitize glasses in cold water. Many companies today have six or eight product formulas available, whereas a few years ago they had only two or three. In addition, chemical companies adapt their formulas to the mineral content of the water in the area where their detergents are used.

### Mechanical Developments

The mechanical developments designed to reduce manual effort in dishwashing are impressive. Surveys revealed that the work involved to handle dish racks, raise and lower steel doors on dishwashing equipment, and transport empty dish racks equalled the work involved to handle all of the utensils to be washed. These studies led to the development of automatic, rackless-type dishwashing machines that eliminate the heavy manual labor. Some machines now incorporate automatic pre-scraping systems and multiple compartments for washing and rinsing tableware, reducing the manual labor required to the extent that one man can operate the machine.

### Reducing Labor

Diagram 3 shows one of these machines. The dishmachine operator is removing clean dishes and stacking them on the outgoing carrier. The bus boy is bringing in a carrier of soiled dishes. In the background, a waitress, having cleared a table, is carrying in a tray of dishes for the bus boy to sort. Above the machine are labels indicating which processes are carried on automatically by that particular section of the dishwashing equipment. Contrast this picture with the manner in which dishwashing was once carried through by old fashioned "pearl divers" not too long ago!

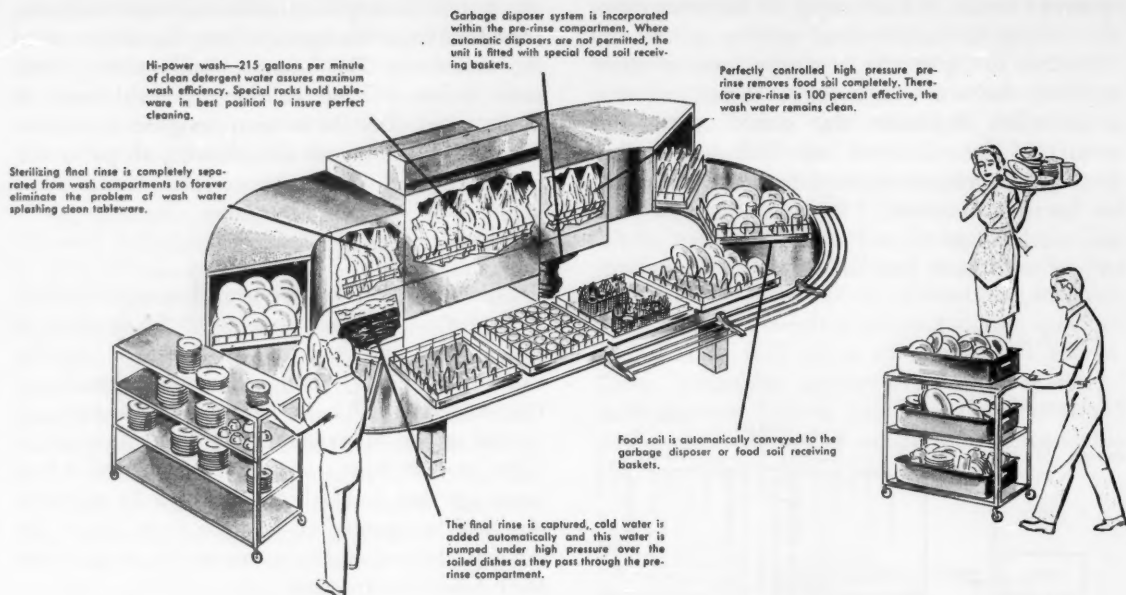


Diagram 3. An Automatic Dishwashing System

*Chemical and mechanical developments have reduced the manpower required to wash tableware, reduced breakage and inventory needs and at the same time improved sanitation.*

### Reducing Breakage

Nylon polyethylene and vinyl-coated steel are being extensively used in manufacturing silverware washing baskets, glass racks, etc. These coatings pad the steel framework, thereby reducing dish breakage at the machine as well as assuring longer life for both the rack and the utensils to be washed. The new type conveyor-dishwashing machines have eliminated the need for heavy steel protective frames around cup and glass racks, which further reduces the manual effort required to handle equipment. Tray conveyors, lowerators, and special trucks and carts have been developed to fit every need and condition. This equipment is designed to be convenient and to reduce the labor required to store and transport tableware. Portable silverware burnishing machines, tray washing

machines, and garbage grinders can be added to the lengthy list of recent developments, all of which are planned to provide greater efficiency with less manual labor in warewashing.

### Conclusion

In brief, an alert management that takes advantage of chemical and mechanical improvements in dishwashing can now wash dishes, glasses, and silverware economically and automatically through the same machine. The tableware comes out of the machine clean and sparkling. It is usable within a few seconds after being washed. Fewer workers and a smaller inventory of tableware are required. Most important, sanitation is improved, the morale of kitchen workers is improved, and operating costs stay in line.

It is recorded in the *Onondaga Standard* (September 1846), that the Onondagas and other Indians have a grand feast annually, which they call *suckatash*, or *succotash*. It states that "the great *suckatash* was served in the big kettle, composed of all sorts of vegetables, mixed with corn and beans, and seasoned with pork and a great variety of meats. It is a luxury highly prized by the Indians as the consummation of their harvest."

## What Does the Title Imply?

# *The Food and Beverage Manager*

The trend is increasing for hotels to seek persons qualified to manage their food and beverage operations. A well-known hotel and restaurant consultant defines what this title should mean.

*Joseph Brodner, C.P.A.<sup>1</sup>*

What does the title, "Food and Beverage Manager" imply? When a hotel seeks a person for this position, the title implies:

1. Complete supervision of the catering and beverage department.

The position encompasses every area into which any item of food or beverage operation could reach in hotels — not just the maitre d'hotel's functions, nor those of the production manager, nor those of the banquet manager.

2. Ability to design and price menus.

There is a science to the design of an eye-catching menu which calls for the combined abilities of an architect, an advertising man, a merchandising expert and a printer.

The menu is, for all practical purposes, your selling tool. It is almost the first thing the guest sees when entering the premises, whether in a dining room, a coffee shop, or even a cafeteria. The menu should be so designed as to be well balanced and priced to produce some agreed-upon, pre-determined gross profit. It should be reviewed by the food and beverage manager either daily or some other recurring period if cycle menus are used. In larger operations, a menu committee should review and approve menus and also act as a board of review for tasting and testing new dishes.

3. Competency to do all food, beverage and related purchasing or supervise it, if delegated to a subordinate.

Food and beverage buying can save an operation thousands of dollars a year. The food and beverage manager must have full knowledge of quality, grades, mark, and count on both perishables and non-perishables. Every establishment should set up, under the food and beverage manager's supervision, a set of purchase specifications as a guide for the dealer, the receiving clerk, the chef and the steward, where applicable. It should be a purchasing function to visit the markets and packing houses where on-the-spot selections may be made. This should result in better buys and certainly in the best possible prices for grade.

4. Ability to engage the principal personnel of the food and beverage department. This connotes a knowledge of job descriptions, psychology of employment, dealing with labor organizations, setting up staffing schedules, and so forth.

Proper staffing for the food and beverage department is a major function. The number one job is to know as accurately as possible the personnel requirements by number and positions to staff the department under varying conditions of hotel room occupancy, conventions and functions, and outside patronage. The theories and practice of payroll pre-control can be an invaluable aid to the food and beverage manager in proper staffing. General management continually stresses to all department heads the constantly rising dollar payroll costs and the increasing proportion that this payroll dollar and fringe benefits are taking out of the sales dollar. Can the food and beverage manager get along with union representatives?

<sup>1</sup> Mr. Brodner is a partner in Harris, Kerr, Forster & Co., accountants and consultants. This article is adapted from an address he gave before a meeting of the Food and Beverage Managers Association, Inc., at the Park Lane Hotel in New York City on June 24, 1959.



5. Full knowledge of modern volume and of cooking methods and procedures.

The food and beverage manager should be right "at home" in the kitchen and, possibly, even behind a range. It is not expected that he should take a turn as a cook, but many top men in the field are graduates from behind the range. Modern volume production and cooking are gradually growing into an accepted pattern, a good deal of which can be accomplished with less experienced help by use of standard, tested recipes.

6. Supervision of all service personnel and knowledge of "proper" service to meet conditions of the type of hotel and its various dining rooms, coffee shops, cafeterias, and even the help's dining rooms.

In the large hotel operation, the maître d'hôtel would come under the supervision of the food and beverage manager, as would the headwaiters, captains, hostesses and other service personnel. Assuming that your product is of good quality and delectable to taste, these folks can destroy all the good efforts of the kitchen staff by poor handling of the patron from his first arrival at the entrance to the dining room, to seating, to service and, finally, to removal of dishes. Training courses are essential.

7. To some degree, depending upon the circumstances, the handling of banquet and function sales and supervise the functioning of the banquet department, if there is one.

Good banquet food and beverage sales can be the keystone of a profitable department. Where there is a fully integrated banquet department, it is assumed that the hotel has the proper personnel to handle sales and promotion, preparation, service, and housekeeping. In many medium-size and smaller hotels, this business is handled personally by the food and beverage manager. To have a fully integrated department here would result in a top-heavy payroll. It is equally as important to have a smooth-functioning banquet department in the small hotel as in the large one.

8. Have charge of all beverage purchases, operation of bars, cocktail lounges and banquet service.

Here, perhaps, is the most lucrative part of the hotel operation except the rooms department. It certainly has been the salvation for many weak food operations and, sometimes, the cover-up for inefficient food operations. This is true where the food and beverage operations are shown profit and loss-wise on a combined basis. Where shown separately, each division must stand or fall on its own merits. The factors of good service and well-mixed drinks at fair prices become the bulwark of successful operation.

9. Supervision and control of all storerooms, refrigerators, and so forth.

There can be waste, pilferage, and, possibly, other controllable losses in this area. While the hotel's auditor has certain responsibilities with respect to all fiscal matters, it is incumbent upon the food and beverage manager to see that through his subordinates all controlled areas, including storerooms, are locked when not in use; no unauthorized personnel are permitted in storerooms or refrigerators; all issues are on requisitions; outgoing packages are controlled; refrigerators and freezers have proper temperatures at all times; as well as many other minor regulations needed to protect the hotel from losses.

10. Good knowledge of kitchen layout, efficient use of newest equipment and appliances, and proper sanitation practices.

An inefficient kitchen layout can be costly. It can cause overstaffing with the attendant excessive payroll costs and it can slow up service to patrons. The food and beverage manager should keep up to date on modern kitchen layouts by reading, visiting other operations, and by keeping in touch with equipment houses. Much can be learned from regular visits to the hotel and restaurant expositions where all the new equipment and appliances are on display. Regardless of the age of the kitchen and its equipment and appliances, the housekeeping should be impeccable enough to pass city health standards and also to permit patrons' being invited to inspect them.

## Summary

These ten points are not an all-inclusive list of the duties and functions of a food and beverage manager. There are many more. On the other hand, it is not intended here to imply that the food and beverage manager *personally* does all of these things. Obviously, this is not possible. But his background and experience should be such that he can take over any subordinate position in an emergency and always have as good, if not better knowledge of a position, as the employee-incumbent. It is disastrous to pull an employee up short and then find that such employee knows a great deal more about his job than you do.

Finally, the food and beverage manager, man or woman, must meet certain personal qualifications: good appearance, sobriety, good work habits, and the ability to get along with people. Without these qualifications, all the other accomplishments are meaningless.

## Mr. Zeckendorf Speaks on Hotels

"Hotels are important to realtors, but their management is a profession within itself," William Zeckendorf, Jr., president of Zeckendorf Hotels and executive vice president of Webb & Knapp, Inc., said in summing up a recent address before students in the School of Hotel Administration at Cornell.

"As Webb & Knapp expanded into the hotel business, we called on some of the ablest hotelmen in the country to join our organization and manage Zeckendorf Hotels. Managers of our hotels are captains of their own ships who strive to build up the personality and the individual atmosphere of the hotels they manage. They also participate in the profits that they earn."

Mr. Zeckendorf explained to the students how he and his father, William Zeckendorf, Sr., president of Webb & Knapp, became involved in hotel operation. "My father and I are both realtors. After attending the University of Arizona and serving with the armed services in Korea, I joined my father's staff in New York. Previously we had bought and quickly resold The Astor and The Gotham in New York and the Hotel Nazionale in Havana. Then we found ourselves in possession of a hotel, The Lincoln on Eighth Avenue in New York, which we couldn't sell without completely rehabilitating it.

"We built a brand-new hotel within the old framework of The Lincoln," Mr. Zeckendorf continued, "and renamed it The Manhattan. In the process, we became interested in hotels as investments and added several more to our real estate holdings in New York City. We acquired The Drake and The Ambassador (later exchanged for The Astor) on Park Avenue; The Taft (near The Astor); leased The Commodore at Grand Central Station; and began erecting the new Zeckendorf at Fifth Avenue and 51st Street.

"Recently we purchased the St. Regis, New York's 'class hotel'. A few weeks ago we expanded to Chicago, where we purchased the Sherman and the Ambassadors East and West. Now we are planning to build in Los Angeles and perhaps in other large cities, such as Washington and San Francisco."

"One principle that we observe," Mr. Zeckendorf pointed out, "is that each hotel's food and beverage department should be income-producing. The traditional viewpoint has been that a hotel's

food and beverage department is a money-losing necessity. But when we were remodeling The Manhattan we noted that restaurants and bars in the Times Square neighborhood were operating at a profit. We felt that we could do so too.

"For that reason we decided to operate our 44th Street restaurant, The Playbill, and our 45th Street bar as ventures separate from the hotel. Both the restaurant and the bar have their own street entrances, are advertised separately from The Manhattan in the metropolitan dailies, and they attract a higher-income group than the hotel does for its accommodations. At The Playbill, the typical dinner check is \$6. The average hotel room upstairs rents for \$11.

"Today real hotel profits lie in serving group business," Mr. Zeckendorf emphasized. "When we traded the newly purchased Ambassador for The Astor, we acquired a convention hotel next door to our 1,400-room Manhattan, a hotel with limited banquet space. Our renovation of The Astor was in reality a 'restoration'. When The Astor was opened in 1910, it soon became New York's society hotel. When we acquired it, The Astor's banquet business was limited to groups that could not afford East Side hotel prices. So we decided to capitalize on The Astor's social history.

Mr. Zeckendorf then discussed their policy for the new addition to their present 1,500-room Hotel Taft. "You might call The Taft a metropolitan boarding house for the folks back home," he said. "The new addition will cater to the same folks, most of whom come in by car and frequently in large groups." The Zeckendorfs bought the old Roxy Theatre, next door to the Taft, which is being razed to provide an addition of 1,000 rooms. Included will be a 600-car storage garage. With 2,500 rooms and storage in the building for 600 cars, The Taft will be the world's largest motor hotel.

Mr. Zeckendorf ended his speech with a description of the new Zeckendorf Hotel now being erected in the Rockefeller Center area. This 2,000-room, luxury hotel will include, besides the largest banquet and meeting room space available in New York, the added feature of 300,000 square feet of office space to provide a stable income. Top floor deluxe suites will have express elevators from a separate lobby with a private entrance.

## French Menu Marks 100th Anniversary of British Evacuation of New York

The New York City Club celebrated the 100th Anniversary of the evacuation of the City of New York by the British (November 25, 1783) with an elaborate banquet held at Delmonico's on November 26, 1883. The French, whose army was present in New York in 1783, were represented by a menu (hand painted and printed by Tiffany's) featuring France's *haute cuisine*. Oscar Tschirky (later known as "Oscar of the Waldorf") was then *maitre d'* at Delmonico's. Later, on the invitation of George Boldt, he became *maitre d'hotel* at The Waldorf when it was first opened in 1893.

	Huitres	
	Potages	
Consommé à la Sévigné		Crème de choux-fleurs
	Hors d'oeuvre	
Olives		Céleri
	Timbales à la Reyniere	
	Poisson	
	Escalopes de bass à la Masséna	
	Releve	
	Filet de boeuf à la Condé	
	Entrees	
Dindonneaux à Lyonnaise		
	Mignons de chevreuil à la Hussarde	
	Cotlettes de ris de veau à la Talleyrand	
	Sorbet	
	Fortuna	
	Rotis	
	Red-heads & perdreaux Salade	
	Entremets	
Epinards	Petits pois	Haricots verts
	Sucres	
Gelée Macédoine	Pudding à l'imperatrice	Charlotte Bengaliennne
	Pieces Montees	
Petits fours		Gateaux varies
	Glaces	
Napolitaine		Merveilleuse
	Fruits & dessert	
	Cafe	

—compiled by Jag Mehta, Cornell '60,  
from Oscar-of-the-Waldorf Menu Collec-  
tion, at Cornell University.

# Experts Discuss Public Space Planning

## U - S - E IN PUBLIC SPACE PLANNING

"The ABC's of decorating American institutions I learned from Barney Allis of the Kansas City Muehlebach Hotel," remarked Henry End, A.I.D., I.D.I., designer of many outstanding dining rooms and hotel interiors, at the Sixth Annual Workshop on Hotel Management held at Cornell in January, 1960. "These are *Utility, Service, and Elegance*. The first letters of these words spells *Use*."

"Elegance," Mr. End observed, "is defined in the dictionary as *marked by refinement, grace, or symmetry; possessing or exhibiting refined taste; possessing a fine sense of beauty or fitness*. This does not mean that a coffee shop or a cafeteria should look like a baroque palace. Smell, temperature, light, and personal taste should also be considered. Unfortunately, some cafeterias look like medical clinics or even washrooms."

"The public," Mr. End said, "enters institutional dining rooms by choice, but this does not mean that we need to pander to the commonplace. Good design, taste, and atmosphere can be appreciated by the public at large. The extreme shock method of decoration is unnecessary and unrelated to the merchandising background of a cafeteria or of a specialty restaurant. In some dining rooms, a certain amount of ostentation may be allowable, depending on its period and merchandising factors."

"Good taste," Mr. End continued, "calls for discrimination on the part of the decorator who today has a greater variety of material to work with than ever before. It also means knowing how to apply good decorating principles. In designing for institutions, this means sticking to a few colors to create the designed atmosphere; judiciously using light to help create this atmosphere by adding depth and perspective or by creating impressions of coolness or warmth; and paying attention to simple details, such as furniture arrangement or the size and shape of furniture as compared to the size and shape of the room."

## "ATMOSPHERE"—EMOTIONAL COMFORT

The well-designed hotel of the 1960's should meet the emotional needs of the guest as well as provide for his physical needs, Morris Lapidus, A.I.A., told members of the Fifth Annual Workshop on Hotel Management at Cornell. Mr. Lapidus, who maintains his offices in Miami Beach, is the designer of such world-famous hotels as the Fountainsbleau, Eden Roc, and the American.

The truly *functional hotel*, he explained, meets the emotional, physical, and business needs of its guests. It also facilitates the work flow of service personnel and expedites managerial control over goods and services. Most important, of all, it is a good investment for the owners because it attracts patronage and is not soon *dated*.

The designing architect, Mr. Lapidus said, must bear in mind that a hotel is more than a mere building: it is a self-contained community operated with the guest as the primary consideration. The hotel guest, according to Mr. Lapidus, is not looking for a "home away from home" when he comes to a hotel. He is seeking a satisfying emotional experience.

The entrance leading to a hotel, the decor of its lobby, the greeting of the doorman, the bellman, the room clerk, and the lighting of the guest's room when the bellman ushers him into it, all add up to the guest's first and perhaps most lasting impression of the hotel. A hotel can have an uncomfortable emotional atmosphere even when every physical need is met.

A person away from home for whatever reason, Mr. Lapidus pointed out, unconsciously expects a new experience, an emotional lift. People want to return to a hotel, not simply because of its physical comfort, but because of the atmosphere. Architects and interior decorators must seek to create an atmosphere that will make the guest emotionally comfortable.

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Brillat-Savarin was a musician, a sportsman, and a skillful cook; and like many another apostle of good living, was educated for the law. Devout gourmets used to celebrate Brillat-Savarin's birthday by visiting his tomb at Pere Lachaise.

"Life is service — the one who progresses is the one who gives his fellow man a little more, a little better service."

—E. M. Statler (1863-1928)



# Selected References on Food Purchasing

Aimee N. Moore, Ph.D.

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Cornell University

[Editor's Note: Professor Moore has taught food selection and purchase at Cornell University for thirteen years. Previously, she was a hospital dietician and also served in Europe with the Armed Services during World War II. These references are included for persons wanting to build up a basic reference shelf on purchasing.]

## BOOKS AND PAMPHLETS

1. American Hospital Association, *Food Purchasing Guide*. Chicago, Illinois, American Hospital Association, 18 East Division Street, 1953.  
Contains charts showing portion size, wholesale unit of purchase, number of servings per unit, how much to purchase for 25 and 100 portions.
2. American Hospital Association, *Food Service Manual*. Chicago, Illinois, American Hospital Association, 18 East Division Street, 1954.  
Contains discussion of all phases of food service operation, including menu planning, preparation of food orders, purchasing and food storage. Includes complete copy of Food Purchasing Guide.
3. American Hospital Association, *Manual of Specifications for Canned Fruit and Vegetables*. Chicago, Illinois. American Hospital Association, 18 East Division Street, 1947.  
Contains general information about grades, definitions of terms used in writing specifications. Specific information about all of the commonly used fruits and vegetables.
4. Crosby and Harris, *Purchasing Food for Fifty*. Ithaca, New York, Cornell Extension Bulletin No. 803.  
Contains charts showing wholesale units, servings per pound, approx. size of serving, amount to purchase for 50 servings of most commonly used meats, fresh fruits and vegetables. Equivalent weights and measures of staples and miscellaneous foods.
5. Dahl and Breland, *Food Standards Handbook of Quantity Cookery*. Stamford, Connecticut, Dahl Publishing, 1945.  
Equivalent weights and measures, common container sizes, percentage of waste in cleaning, cooking. Small, compact reference.
6. Dana, Arthur, *Portion Cost Calculator for Meat, Fish and Poultry*. Amino Products, 20 North Wacker Drive, Chicago 6, Illinois.  
Contains yield factors for bone-in and boneless cuts of meat based on kitchen studies done in Prime and Choice quality. By dialing yield factor and portion size can accurately determine cost per portion on basis of as purchased price per pound.
7. Frooman, A. A., *Five Steps to Effective Institutional Food Buying*. Chicago, Illinois. A. A. Frooman and Associates, 1948.  
General information on good purchasing policies and procedures. Specific information about canned fruits, vegetables, juices, miscellaneous canned foods, dried fruits, and frozen foods. This includes style of pack, grade factors, size, drained weights, faults and imperfections.

8. U.S.D.A., Agriculture Marketing Service, Livestock Division. *Institutional Meat Purchase Specifications for Use Under U.S.D.A. Acceptance Service*. Washington 25, D.C.
  - A. Primal Cuts
    - General Requirements
    - Fresh Beef
    - Fresh Lamb & Mutton
    - Fresh Pork
    - Fresh Veal and Calf
  - B. Portion Control Products
    - Beef, Lamb, Pork, Veal or Calf
9. U.S.D.A., Agricultural Research Service. *Food Yields Summarized by Different Stages of Preparation*. Ag Handbook 102. Washington, D.C.: Government Printing Office, 1956.  
Comprehensive compilation of information about cleaning and cooking losses for meat, fish, poultry, fruits and vegetables.
10. U.S.D.A., Bureau of Human Nutrition and Home Economics. *Food Purchasing Guide for Group Feeding*. (Reprinted from Ag. Hand Book No. 16, *Planning Food for Institution, Separate 1*). Washington 25, D.C.  
Contains charts showing unit of purchase, weight per unit as purchased (A.P.) refuse, weight per unit before cooking edible portion (E.P.), size of serving, servings per purchase unit, purchase units to serve 100 of fresh, canned, frozen and dried foods.
11. U.S.D.A., Bureau of Human Nutrition and Home Economics. *Planning Food for Institutions*. Ag. Hand Book No. 16. Washington 25, D.C.  
In addition to purchasing information (See *Food Purchasing Guide for Group Feeding*), this booklet gives information about planning nutritionally adequate diets for low and moderate cost menus for different age level groups.
12. U.S. Department of Interior, Fish and Wildlife Service. *Fresh and Frozen Fish Buying Manual*. Circular 20. Washington, D.C.: Government Printing Office, 1954.  
Contains information about market forms of fresh and salt water fish and shellfish, seasonal variations in supply of fresh fish at various ports.
13. West and Wood, *Food Service in Institutions (3rd Ed.)*. New York: John Wiley and Sons, Inc., 1955.  
Contains a discussion of all phases of food service operation including menu planning, food purchasing, food preparation, sanitation, cost control, personnel management, kitchen layout, and equipment purchasing.

#### CURRENT PERIODICALS

1. Dawson, Elsie *et al.* "Food Yields in Institutional Food Service," *Journal American Dietetic Association*, Vol. 34
  - Part 1 — Fruits and Vegetables (March 1958)
  - Part 2 — Meats and Poultry (April 1958)
 Points out some of the practices in preparation which contribute to variation in yield of edible food; average yield factors based on large samples.
2. Kotschevar, Lendal. "How to Specify Fabricated Meats," *Institutions Magazine*. July 1957.  
Discussion of the factors which should be incorporated into specifications for fabricated meat.
3. MacFarlane, Alberta, Series of Articles in *Institutions Magazine* on purchasing and storing foods. (January 1958–February 1959.)

(Continued from page 16)

**What is your opinion of prefabricated meats?**

- (Withheld) Good. We have no butchers and yet have an annual sales volume of more than one million dollars.
- Arthur W. Dana Many hospitals and employee cafeterias have been receiving fabrication (boning, rolling, chops, etc.) service from local as well as remote dealers.
- The Drake We use Cry-O-Vac meats and find them satisfactory.
- Houston Club If one is "hard to please" and a big enough user to keep purveyors on their toes, he can get just what he wants.
- A. L. Mathias We don't use prefabricated meats exclusively, but we've had good results with those we have tried.
- Memorial Center Prefabricated meats should offer a maximum of control. This hasn't been true in all instances and additional trimming is often necessary.
- Ford Motor Co. Our operation consists of twelve cafeterias, all within a close local radius, serving 3,500,000 meals annually. Because of this large volume we operate a central commissary butcher shop, purchasing largely primal cuts and then fabricating and oven-preparing them for delivery to the units. Last year we began commissary preparation of some formula meats, including portioning in some cases.
- Princeton Prefabricated and portion-ready meats provided the answer to a real problem here at Princeton University. We were unable to service the entire campus from our small, centrally located butcher shop. A year ago we made a study of the investment needed to enlarge our butcher shop, and the cost of added labor and distribution. After comparing these costs with the local prices of prefabricated and portion-ready meats, we concluded it would be better to increase each unit's freezer capacity for added storage and not to operate our own butcher shop.
- Sheraton Some meats are made from by-products and sold as cutlets, forced meats, etc.; it is hard to judge their grade or quality.
- Stouffer The quality is good. Use from a cost standpoint depends on type of operation and menu as well as the quality and quantity of labor available.
- Treadway Beef ribs and lamb need improvement.
- Western Hotels Can control size of ribs, lambs, legs, strips, barons. No wastes; no by-products to use up.

**What is your opinion of portion-ready meats?**

- Arthur W. Dana Except for two or three institutional wholesalers who offer a range of quality, the national packers have just recently begun to upgrade substantially some of their portion-ready meats. Some are still unsatisfactory for deluxe service.

<b>The Drake</b>	The Drake's portions are larger than standard. Our butcher does portion cutting. Portion-ready meats are usually frozen; we use only fresh.
<b>Houston Club</b>	We offer such a variety of steak sizes that inventory control proved difficult. We get our best meat from Chicago, 1,200 miles away.
<b>Kahler</b>	We consider portion-ready meats a convenience food and are slowly increasing our use of them because of labor costs.
<b>Ford Motor Co.</b>	We can fabricate our own portion-ready meats cheaper than we can purchase them. In certain instances, the packer is a better source than our own meat department because the packer has other outlets for disposing of portions falling outside our specified weight tolerances. We feel there is considerable room for improvement in most portion-ready meats sold by the packer or purveyor; there is no uniformity in trim and quality. Purveyors, in order to meet competition and offer portion-ready meats at a price the restaurants can afford to buy, have the tendency to fabricate the cuts from the lower grade meats and attempt to offset low quality by using a cubing machine. This is not the fault entirely of the meat industry, for many restaurant people do not understand how to figure the cost of portion-preparing their own primal cuts.
<b>Pick Hotels</b>	We have had difficulty in getting standard quality in portion-ready meats, particularly in the smaller towns.
<b>Sheraton</b>	These meats are precut; we order them to our standards.
<b>Pope's Cafeterias</b>	We buy pork cutlets, veal cutlets, and pork chops.
<b>Treadway</b>	If we could get into fresh, portion-ready meats, it would be excellent. One disadvantage—we have more than one restaurant and they serve different size portions of the same item.
<b>Western Hotels</b>	Portion control is excellent for steaks, chops, cutlets, stews, and boned short ribs.

*Please comment on your present use, as well as your anticipated use, of frozen meats.*

<b>(Withheld)</b>	Because of increased business volume, all steaks and chops are now frozen.
<b>Arthur W. Dana</b>	Hospitals having butchers are seeking to eliminate them and to increase their use of frozen meats.
<b>Houston Club</b>	We can't be convinced that freezing doesn't impair beef flavor. By the packer and ourselves using Cry-O-Vac, we are cutting down on amounts of frozen beef and veal. Chicken and fish are always fresh but turkeys are frozen.



- Kahler** We endeavor to use fresh meat and age it ourselves. This is difficult as our operation is not near wholesale meat markets. We consider frozen meats inferior to fresh, particularly the steaks and chops. But frozen roasts, hamburgers, etc., are satisfactory.
- A. L. Mathias** For special parties on short notice frozen meats are excellent.
- Memorial Center** Daily deliveries are convenient in our present setup; therefore, we do not plan to increase our use of frozen meats.
- Princeton** We have decided to buy our meat items, wherever possible, oven- or pan-ready and to store them in our units' freezers.
- Sheraton** If meats and fowl are properly wrapped and frozen and then correctly defrosted, they are little different from fresh items. We use them sparingly because of storage problems.
- Stouffer** We are continually testing frozen meats and feel that our use will increase as methods and quality improve.
- (Withheld)** Our new units have butcher shops and freeze their own cuts.

## 7. WHEN BUSINESS INCREASES, IS MORE STORAGE SPACE REALLY NEEDED OR CAN PURCHASING METHODS BE ADAPTED?

How much is enough storage? This question elicited varied answers from the 23 successful operators from which several constructive generalizations can be compiled.

The size of the storage area and where it is located is an essential part of food production planning. Storage should be adequate to permit quantity purchasing. Its location should be functional and permit supervisory control. Traffic flow patterns for the entire food operation unit should be planned to minimize the crossing of paths and backtracking from the receiving of supplies through storage, preparation, cooking, holding, and serving. Ideally, all of these functions should be centrally located on one floor.

The premium on horizontal space in metropolitan areas makes the one-floor arrangement extremely costly when the storage area is sizable. For that reason, in most large city operations, receiving and storage are located in the basement or on the ground level below preparation and serving. This involves expensive conveying facilities, such as elevators and dumbwaiters, and generally results in a loss of supervisory control. In rural areas, particularly for inplant feeding, receiving and storage are usually located on the same floor with preparation and cooking. The exception is the food service unit located in the plant's multi-story office building.

In the restoration or renovation of an existing structure, the food service consultant is bound by built-in limitations and must apply as best he can the principles of function, labor-saving, and supervisory control. Purchasing methods can be adapted so that units with limited storage space can still take advantage of quantity purchasing. It isn't necessary to have all deliveries made at the time of purchasing. Long-term contracts specifying delivery on demand are proving to be successful procedures with large

operators and multiple-unit operators. Single units have often found that this same procedure, though more expensive than one-time delivery, is less costly in the long run than enlarging their storage areas in high-rent districts.

In a new building, the architect and food service consultant must work together from the outset to achieve an economical one-floor arrangement for food production. Moreover, when the consultant has the opportunity to work with the architect from the start, it is possible to make the entire food service operation functional and labor saving.

In response to the survey questions, most operators felt that they could utilize their existing storage space more efficiently. Many indicated that increased usage of frozen and other convenience foods would reduce their needs for added storage space when sales volume increases. More frequent deliveries was also mentioned as a means of offsetting storage needs.

It was interesting to note that two-thirds of the respondents said that storage adequate only for a long weekend is sufficient in their operations. [*Presumably this means refrigerated storage not dry storage, although this question was not asked. Ed.*] These operators are keeping their inventories to the essential minimum through better scheduling of receipt of supplies and more exact control over issuing menu ingredients. Thus, they have more accurate knowledge of how long a given quantity of raw material will last and can specify deliveries at the optimum time to meet their requirements.

Little correlation was found between sales volume and the amount of storage space required. In answer to the question as to whether the 23 companies, in planning for higher volume sales, expected to increase their storage in direct proportion, only 2 replied "Yes."

*The reasons given for not increasing storage space as sales increase are as follows:*

	No. Listing
<i>Existing storage space is larger than presently needed:</i>	1
<i>Planning to make better utilization of existing space:</i>	16
<i>Planning to make increased use of convenience foods:</i>	10
<i>Planning to use more frozen foods:</i>	8
<i>Planning to have more frequent deliveries of food:</i>	12
<i>Revising menu to reduce number of items offered:</i>	6

**Quantity Purchasing** (despite the extra labor, equipment, and extra storage space needed and possible losses through damage and tied-up capital investment) was indorsed by most of the 23 companies. The savings thus obtained apparently are sufficient to offset present storage costs.

<i>Do you believe that a significant saving is possible through quantity purchasing?</i>	Yes	17	No	6
<i>If your answer to the above question is "Yes," do you take advantage of quantity discounts?</i>	Yes	16	No	1
<i>If you do not take advantage of quantity discounts, would you do so if you had enough storage space available?</i>	Yes	2	No	5

## SELECTED COMMENTS ON STORAGE SPACE:

- Cornell** More efficient packaging of foods (more portions in cubic foot) saves storage space.
- Greenbrier** We like to keep food inventories at the lowest practical minimum. Storage space that automatically grows larger with significantly increased sales frequently invites unnecessary purchases.
- Treadway** It is physically impossible to expand the plant of many of our operations; therefore, present storage areas must do the job.
- Western Hotels** To keep within our present storage area, we plan to maintain smaller inventories; reduce the number of inventory items; restrict inventory items to menu offerings and to plan our menus efficiently to reduce inventory size.
- Princeton** We have, over a five-year period, tested and studied most of the purveyors in our area. We have standardized on a limited number of purveyors for all nine of our units and made informal agreements with them. With the exception of groceries, the agreement, in essence, is that the same price prevail to all units whether we purchase one unit of an item or one hundred units of the item. The purveyor agrees to deliver all units on specified days, with our central purchasing department placing the order with the purveyor at a specified time prior to delivery. All bills are sent to the central office and payment is made on one voucher covering all units. We, in turn, agree to purchase at least 90% or more of our total requirements from the purveyor.
- For meats and produce, we have four purveyors in each group and although we get daily quotations from them, awarding the order to the lowest bidder, we also get frequent quotations from other purveyors as a check.
- For groceries, we have an agreement with a grocery house on a cost-plus percentage mark-up plan. All of the above conditions mentioned (except those concerning meats and produce) are part of our purchasing agreement. In addition, we pay the grocery house weekly so that they have a rapid turnover on the account and eliminating the necessity of their billing us monthly.
- Thus, we do not have to purchase in large quantities to get the lowest price nor do we need to have a large storage space to warehouse these items. Further, we have eliminated the cost of distributing items.

## LOCATION OF RECEIVING AND STORAGE AREA

About the same number of companies have their storage area located on the floor below the kitchen as have it on the same floor. Of those reporting that their storage area is below the kitchen, only half reported that this location is seriously inconvenient. But most operators, in planning a new layout, would locate their storage facilities on the same floor with preparation and cooking.

Are your receiving and storage areas located on the same floor with the food preparation and cooking areas?

Yes 12 No 11\*

(\* in part of operations only, 2 added here.)

If your answer to the above question is "No," has the location of receiving and storage on another floor caused any serious problems?

Yes 6 No 5

If your receiving and storage area is presently located on another floor, would you, in planning a new operation, locate them on the same floor with preparation and cooking?

Yes 8 No 4

Would you consider your storage facilities more efficient if they were:

a. Located near the receiving area?

Yes 18 No 2

b. Located adjacent to preparation and cooking?

Yes 17 No 4

N.A. 2

c. Adequate just for a long weekend?

Yes 13 No 6

N.A. 3

d. Big enough to permit large-quantity purchasing?

Yes 6 No 14

N.A. 3

#### SELECTED COMMENTS ON LOCATION OF STORAGE AREA:

- The Drake** (Storage at a lower level) conserves space on the food preparation level and enables us to provide more dining facilities on the same floor as the preparation.
- John R. Thompson** Our expansion program has been in shopping centers and motels. It isn't always possible to have the physical layout that permits the use of one floor.
- Ford Motor Co.** Closer supervisory controls can be maintained over a one-floor operation. Building costs can be reduced through elimination of elevators, dumbwaiters, subveyers and the like. The storage area is the more important of the two (receiving or storage) to have on the preparation and cooking floor.
- Morrison Cafeterias** All foodstuff is delivered to our operating units from our warehouses three times weekly and our storage facilities are planned (on the same floor) with this in mind.
- Kahler** The question really is "What products where?" Some can be off the main floor easily; others cannot. Elevator usage and location also affect the decision.
- Houston Club** With interplant telephone, "squawk" boxes and telautograph, combined with dumbwaiters and elevators serving different areas, we feel that it is more efficient and faster to move vertically rather than horizontally.
- The Prophet Co.** In many of our operations the storage area is located on another level; we feel for better control, easier handling, storage should be adjacent to preparation centers.



## 8. WHAT FOOD PRODUCTS AND PREPARATION EQUIPMENT HAVE HELPED CUT COSTS?

That there should be a labor shortage in the 1960's despite the burgeoning post-War population is an anachronism. The explanation is that the minimum-wage legislation, implemented by union influence, has upped wages in all industries. Traditionally, labor of the food service industry has been recruited among recent immigrants coming from European countries with low wage structures and among unskilled workers coming from rural area in the United States. High minimum wages for unskilled workers have now made labor-saving machinery and equipment less expensive than additional manpower.

The need for labor-saving equipment first became apparent in the late 1930's when the nation began defense preparations. The actual development was postponed by war-time restrictions on non-defense manufacturing. Since 1947 the number of labor-saving devices introduced into the food service industry has been phenomenal. More has been done to improve food products and preparation and cooking equipment during the past twelve years than previously had been done since the days of Lucullus. The impending minimum-wage legislation will no doubt give impetus to added automation within large units of the industry.

Of the 23 companies reporting, 20 replied that food products and preparation equipment had helped them cut costs during the past five years; 18 reported reductions in labor costs and 13 reported reductions in food costs. Greater productivity per worker had helped 12 operators cut their costs.

In checking over the items reported as helping cut preparation costs, food items were mentioned 47 times and specific pieces of equipment 12 times. Improved vegetable cutters and choppers were mentioned 6 times.

### SELECTED COMMENTS ON FOOD PRODUCTS AND PREPARATION EQUIPMENT THAT HAVE HELPED TO CUT COSTS:

- |                       |   |
|-----------------------|---|
| <b>Cornell</b>        | Pre-portioned meats; Tetrapak milk containers; frozen pastry; flour base mixes.   |
| <b>Arthur W. Dana</b> | Improved vegetable cutter, particularly for Polynesian vegetables. Cream dispenser for multiple batcher of individual creamers. Combination cream and coffee urn faucet with dial indicators. Silicone-treated pans to eliminate greasing for baking purposes. Roll-in standard refrigerators for portable racks of salads, etc. Open top (supermarket type) refrigerators in service kitchens. |
| <b>Kahler</b>         | Vegetable cutting machine; baking mixes; pre-cut french fry potatoes; pre-portioned frozen meats; better coffee urns.   |
| <b>Marshall Field</b> | Frozen foods; portion-ready meat, food, and fish.   |
| <b>A. L. Mathias</b>  | Instant potatoes, frozen french fries, better food chopper, dehydrated onions, pre-made hamburg patties.  |
| <b>Pick Hotels</b>    | Meat saws; vegetable slicers; improved dishwashers; cold plate counter; better garbage disposal.  |

<b>Sheraton Hotels</b>	Pre-cut meats, frozen foods, fresh-packed fruits. Better ranges, broilers, and ovens.
<b>John R. Thompson</b>	Better chopping-slicing equipment, pre-peeled vegetables and frozen vegetables and fruits.
<b>Treadway</b>	Prefabricated meats; prefabricated potatoes (french fried, boiled, mashed); and ready-mix salads.
<b>Western Hotels</b>	Prefabricated meats; convenience foods and bakery mixes; plastic salad green containers; and egg and lemon sectioners.
<b>Slater System</b>	Convenience foods; vegetable cutters; and improved pressure cookers ovens and ranges.

### COOKING COSTS

When queried concerning food products and equipment items that had helped to cut cooking costs, 17 of the 23 respondents replied that they had reduced their costs. Two-thirds reported that labor costs had been cut and half of them said that food costs had been reduced. When asked to list the food products or equipment that had helped cut costs, 10 food items were listed and cooking equipment was listed 23 times. Better deep fryers seemed to be the most important improvement among equipment items as it was mentioned 6 of the 23 times.

### SELECTED COMMENTS ON FOOD PRODUCTS AND ITEMS OF COOKING EQUIPMENT:

<b>Houston Club</b>	The Radarange and rotary-type oven have helped us cut down on over-production as well as shrinkage on several items.
<b>(Withheld)</b>	No marked improvement on cooking equipment over the past 20 years.
<b>Marshall Field</b>	Deep fat fryers, steamers, Radarange, and vegetable choppers have helped cut cooking costs.
<b>Memorial Center</b>	Controls and supervision have been improved during the past few years and are the primary reasons for reduced costs.
<b>Pick Hotels</b>	Better fat fryers and charcoal broilers have been helpful.
<b>John R. Thompson</b>	Radarange, Truman kettles and better grills and fryers.
<b>Western Hotels</b>	Portion packaging; pre-cooked rice; dehydrated potatoes (cubes, slices, instant) and frozen french fries; non-fat dry milk and soup bases have helped cut cooking costs.

### EQUIPMENT BECOMING OBSOLETE

Equipment that may become obsolete in food preparation and cooking included peelers (4 out of 10 items listed), bread slicers, large kettles, and the butcher shop.

## EQUIPMENT NEEDING IMPROVEMENT

### *Preparation and Production Equipment*

<i>Item</i>	<i>Times Listed</i>
<i>Ranges</i> .....	<i>7</i>
<i>Ovens</i> .....	<i>7</i>
<i>Slicers</i> .....	<i>4</i>
<i>Coffee Urns</i> .....	<i>4</i>
<i>Vegetable choppers and cutters</i> .....	<i>3</i>
<i>Steamers</i> .....	<i>3</i>
<i>Hot food holding facilities</i> .....	<i>3</i>
<i>Sinks</i> .....	<i>2</i>
<i>Refrigeration</i> .....	<i>2</i>
<i>Miscellaneous items (8)</i> .....	<i>1</i>

### ***Dish Handling Equipment:***

Dishwashers were reported as needing improvement by 9 operations. The features desired included:

*better access for cleaning*  
*better dish dryers*  
*machines to incorporate disposals*

### ***Service Facilities:***

Service facilities needing improvement were those that would permit more self-service by waiters or patrons. These include reach-through refrigerators; self-closing hinged doors; and better carts, work stations, steam tables, and cafeteria counters.

## **9. ARE CHINA AND LINEN SUBSTITUTES GAINING WIDER ACCEPTANCE?**

Despite rising prices for china, most respondents do not plan to substitute plastic or paper plates for china in "status areas." The greatest use of china substitutes is being made in institutional feeding and in employees' cafeterias.

Table linen is used, at least part of the time, by all 23 respondents. Few of them plan to increase their use of linen substitutes. Again, institutions, such as university dining halls, are among those planning greater usage.

The conclusion can thus be reached that unless great improvements occur in the present quality of china and linen substitutes, the companies reporting will continue to face high maintenance charges for these service items. No down-grading in service is being planned except in institutional feeding.

## **10. IS MORE MECHANIZATION AHEAD FOR DISHWASHING?**

The National Sanitation Foundation has pointed out that sanitation is really "a way of life." Supervisory control as well as properly designed facilities and equipment are required to achieve high standards.

With respect to dishwashing, there are two schools of thought:

1. Wash the dishes as soon as possible after removing them from the dining area.
2. Stock-pile the dishes after scraping them and wash them during regular 8-hour work shifts.

The traditional approach has been to adapt the dishwashing routine to the peaks and valleys of breakfast, luncheon, and dinner service. Some operators feel that it is more economical to wash dishes during regular 8-hour shifts on a continuous-flow basis from an accumulated stock pile because a minimum labor force can be utilized and kept busy.

When questioned concerning which areas of the dishwashing operation—scraping, stacking, loading, unloading, and sorting—should next be mechanized in their own operations, 6 mentioned *scraping*. *Stacking* was mentioned 5 times. One operator would combine *unloading* and *stacking*. Another operator is planning to mechanize *stacking*, *loading*, *unloading*, and *sorting*.

Improved systems for garbage disposal seem paramount among improvements needed for better sanitation among the 23 operators questioned. Some also mentioned improved supervisory control and better training.

## CONCLUSIONS DRAWN FROM THE SURVEY

Food service operators are alert to changing patterns in public tastes in food and decor. Price increases are not viewed as the only means of solving higher production costs. Except in employee cafeterias and in college dining halls, there is little prospect for service standards being lowered; most operators are upgrading their dining areas. Better supervisory methods and improved training techniques should help workers to increase their productivity. Purchasing methods adapted to the operator's requirements and better inventory control should cut costs and save storage space. Increased use of convenience foods and more mechanization of equipment are ahead to offset rising wages.

Without doubt, the "soaring sixties" will see many innovations in labor-saving methods and equipment for preparing food. Yet, judging from the answers given by these 23 leaders in the food industry, service will not be radically changed.

People, it must be remembered, view dining as a traditional rite as well as a necessity. Customs change slowly. Food has been sold through automatic coin dispensers for more than a generation. Will the time soon come when the patron first views a diorama of the day's menu on colored, closed-circuit TV, then punches buttons to select his meal automatically and simultaneously records the proper charge against his credit card? Your forecast is invited.



# Employers Lead in Educating Employees

A bouquet is due bosses in the hotel and restaurant industry who help their employees get ahead through summer professional study. Of the 191 students attending the Summer Short Courses in hotel and restaurant education at Cornell University in 1959, 111 were told about the program by their employers. Even more impressive, 142 employers footed all or some part of the bill. Another 30 of the summer enrollees had been told about the program by fellow employees. The remaining 77 had read about the program in the trade press or heard about it from other similar sources.

To meet the needs of those who are actively engaged in hotel or restaurant work but who may be able to spend a week or more in study, the School of Hotel Administration offers each summer a series of short unit courses. One, two, or three weeks in length, they cover such topics as Hotel Operation, Motel Operation, Restaurant Management, Advertising and Sales Promotion, Personnel Methods, Quantity Food Preparation, Hotel Stewarding, Menu Planning, Hotel Accounting, Restaurant Accounting, Food Control, Interpretation of Hotel Statements, Food Facilities Engineering, Hotel Housekeeping, and Hospital Operation.

Well-known specialists scheduled to provide instruction for the summer of 1960 from outside the Cornell faculty include: Professor Matthew Bernatsky, director of the School of Hotel and Restaurant Management at Denver University; Grace H. Brigham, past president, National Exec-

utive Housekeeping Association; H. Victor Grohmann, president, Needham & Grohmann, Inc., specialists in hotel advertising; Harold E. Lane, second vice president, Labor Relations and Personnel, Sheraton Corporation of America; John D. Lesure, C.P.A., member of the firm of Horwath & Horwath, hotel and restaurant accountants; Alice L. Patterson of *American Motel Magazine*; and Professor George K. Waldner, senior chef instructor, New York City Community College.

Regular members of the School of Hotel Administration faculty offering courses include: Professor O. Ernst Bangs, food facilities engineering; Professor Robert A. Beck, Ph.D., elementary accounting; Professor Charles E. Cladel, C.P.A., hotel accounting and food and beverage control; Professor Gerald W. Lattin, Ph.D., who will assist Professor Matthew Bernatsky with the Teacher Training for Chefs course; Professor Frank H. Randolph, M.E., P.E., food facilities engineering; and Professor J. J. Wanderstock, Ph.D., menu planning and meats, poultry, and fish.

There are no formal entrance requirements to these Cornell summer short courses. Anyone engaged in hotel, restaurant, hospital, or other institutional work may apply. Students may start on June 27, or on any Monday after that, for one week, two or three weeks, or for the entire seven weeks. Most classrooms are air conditioned.

Expenses for attending the Cornell program are about \$60 weekly; \$30 for tuition, which includes membership in Willard Straight Hall, student recreation center; and \$30 or more for living expenses in the University's residential halls and meals on the campus. Through the generosity of the Statler Foundation a number of scholarships, ranging in amount from \$100 to \$300 are available for practicing chefs and for teachers who attend the course in Teacher Training for Chefs, from July 18 to August 13.

A wide variety of sports and other recreational activities are available to registrants at a minimum expense. The University maintains an impressive athletic plant, including tennis, golf, and swimming. The scenic state parks of the Finger Lakes area nearby provide wholesome opportunities for swimming, boating, hiking, and picnicking. Summer theater performances are held in several adjacent communities. Transportation is always readily available.

## Coming Issues—

### August

**A Research Report for Mass Housing and Feeding, plus—A Selected Bibliography** of books, pamphlets, and periodical articles relating to hotels, motels, restaurants, clubs, hospitals, industrial feeding, and institutions generally.

### November

**A Report on Supervision, Education, and Training for Mass Housing and Feeding in the United States.**



*Joseph Baum (Class of '43) vice president, and Albert Stockli, executive chef, Restaurant Associates, New York City, demonstrate the preparation of specialties at a recent workshop.*

## Workshops for Executives

**Workshops for executives in the hotel, restaurant, and club industry are held by the School of Hotel Administration at Cornell. Conferences scheduled for 1960-1961:**

<i>Date</i>	<i>Conference</i>
August 16 - 18, 1960	Federal Labor Law Affecting Hotel Operation
August 29 - 31, 1960	Fifth Annual Club Managers' Short Course
October 23 - 26, 1960	Third Annual Management Seminar for Executives and Officers of Multi-Unit Restaurant Operations
November 20 - 23, 1960	National Council on Hotel and Restaurant Education
January 23 - 27, 1961	Seventh Annual Hotel Management Workshop
March 1961 (Days not set.)	Fourth Annual Howard Johnson Agents' Seminar

For information concerning registration, housing, and fees write to: Professor J. William Conner  
Workshop Director, Statler Hall  
Cornell University  
Ithaca, New York



**Summer School of Hotel and Restaurant Administration**  
**Cornell University, Ithaca, New York**  
**Schedule for 1960**

<b>MANAGEMENT</b>		<b>Time Offered</b>
Advertising and Business Promotion		July 4 to 9
Personnel Methods		July 11 to 16
Motel Operation		July 18 to 23
Restaurant Management		July 18 to 30
Hotel Housekeeping		July 25 to 30
<b>ACCOUNTING</b>		
Elementary Accounting		June 27 to July 16
Food and Beverage Control	<b>First section</b>	July 4 to July 9
	<b>Second section</b>	July 11 to July 16
Hotel Accounting		July 18 to Aug. 6
Interpretation of Hotel Financial Statements		Aug. 8 to Aug. 13
<b>FOOD SERVICE</b>		
Meats, Poultry, and Fish		June 27 to July 9
Quantity Food Production	<b>First section</b>	June 27 to July 9
	<b>Second section</b>	July 11 to July 23
	<b>Third section</b>	July 23 to Aug. 6
Teacher Training for Chefs		July 18 to Aug. 13
Menu Planning		July 11 to July 16
<b>FOOD FACILITIES ENGINEERING</b>		
Preliminary Planning and Programing		June 27 to July 9
Food Service Equipment Layout		July 11 to July 23
Food Facilities Engineering		July 25 to Aug. 6

No formal admission requirements. Tuition, \$30 a week. Estimated living expenses, \$30 a week.

For information, write the Dean, School of Hotel Administration, Statler Hall, Ithaca, New York.

